

**FLIGHT STANDARDS SERVICE
VOR STANDARD INSTRUMENT APPROACH PROCEDURE**

TITLE 14 CFR PART 97.23

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.

If an instrument approach procedure of the above type is conducted at the below named airport, it shall be conducted in accordance with a charted instrument approach procedure predicted on the specifications contained herein, unless an approach is conducted in accordance with a different procedure for such airport authorized by the Administrator. Minimum altitudes shall correspond with those established for enroute operations in the particular area or as set forth below.

<u>AIRPORT</u> WATERLOO RGNL	<u>AIRPORT ID</u> KALO	<u>PROCEDURE NAME</u> VOR RWY 18	<u>ORIGINAL/AMENDMENT</u> 9	<u>CITY</u> WATERLOO	<u>STATE</u> IA
<u>AIRPORT ELEVATION</u> 873	<u>TDZE</u> 871	<u>SUPERSEDED</u> VOR RWY 18	<u>ORIGINAL/AMENDMENT</u> 8B	<u>DATED</u> 07/21/2016	<u>MAG VAR</u> 0E
<u>FACILITY</u> ALO	<u>COORDINATES OF FACILITIES</u>	<u>ACTUAL EFFECTIVE DATE</u>	<u>REQUIRED EFFECTIVE DATE</u> ROUTINE	<u>CANCEL/SUSPEND</u>	<u>EPOCH YEAR</u> 2020

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>

MISSED APPROACH

MAP:

ALO VOR/DME

MISSED APPROACH INSTRUCTIONS:

CLIMBING RIGHT TURN TO 2800 ON ALO VOR/DME R-215 TO NEVIS INT AND HOLD.

ALTERNATE MISSED APPROACH INSTRUCTIONS:

PROFILE:

1. PT L **SIDE OF COURSE** 357.51 **OUTBOUND** 2600 **FT WITHIN** 10 **MILES OF** ALO VOR/DME (IAF)

2.

3. **FAC:** 177.51 **FAF:** **DIST FAF TO MAP:** **DIST FAF TO THLD:**

4. **MIN ALT:** IXKUJ/ALO VOR/DME 2.72 DME 1600

8. **MSA FROM:** ALO VOR/DME 360-090 3200, 090-180 4000, 180-360 2600

EQUIPMENT REQUIREMENTS NOTES:

NOTES:

CHART NOTE: RWY 18 HELICOPTER VISIBILITY REDUCTION BELOW 3/4 SM NOT AUTHORIZED.

ADDITIONAL FLIGHT DATA:



CHART CIRCLING ICON.
IXKUJ TO RW18: 3.00/42.3.
CHART VDP AT 1.90 DME
DISTANCE VDP TO THLD 1.34 NM
CHART FAS OBST: 1288 TOWER 424255N/0922604W, 1090 PWR LN 423532N/0922431W.
FAC CROSSES RWY C/L EXTENDED 3000 FT FROM THLD.
HOLD SW, RT, 034.60 INBOUND

MINIMUMS:

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

ALTERNATE: NA ☐ 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
S-18	1600	1	729	1600	1	729	1600	2	729	1600	2	729			
CIRCLING	1600	1	727	1600	1	727	1600	2	727	1600	2 1/4	727			
IXKUJ FIX MINIMUMS															
S-18	1340	1	469	1340	1	469	1340	1 3/8	469	1340	1 3/8	469			
CIRCLING	1360	1	487	1400	1	527	1480	1 3/4	607	1600	2 1/4	727			

CHANGES - REASONS

1. UPDATED PROCEDURAL MAG VAR FROM 6E/65 TO 0E/2020 - MAG VAR TOLERANCE.
2. UPDATED PT COURSE FROM 345 TO 357.51 - OPTIMUM COURSE
3. UPDATED FAC FROM 165.00 TO 177.51 - OPTIMUM COURSE
4. UPDATED MSA SECTOR 180-360 FROM 2500 TO 2600 - OBSTACLE EVALUATION.
5. UPDATED S-18 MDA/HAT FROM 1540/670 TO 1600/729 - OBSTACLE EVALUATION.
6. UPDATED S-18 VISIBILITY CAT C FROM 1 3/4 TO 2 - VIS CK .
7. UPDATED S-18 DME MINIMUMS TO IXKUJ MINIMUMS - IAW 8260.19H 2-10-5
8. UPDATED S-18 IXKUJ MDA/HAT FROM 1320/450 TO 1340/469 - OBSTACLE EVALUATION.
9. UPDATED S-18 IXKUJ CIRCLING MDA/HAA, CAT A FROM 1380/507 TO 1360/487, CAT B FROM 1380/507 TO 1400/527, CAT C FROM 1380/507 TO 1480/607 CAT D FROM 1480/607 TO 1600/727 - OBSTACLE EVALUATION.
10. UPDATED S-18 IXKUJ VISIBILITY CAT C FROM 1 1/4 TO 1 3/8 CAT D FROM 1 1/2 TO 1 3/8 - VIS CK CALCULATOR.
11. UPDATED S-18 IXKUJ CIRCLING VISIBILITY CAT C FROM 1 1/2 TO 1 3/4 CAT D FROM 2 TO 2 1/4 - VIS CK CALCULATOR
12. ADDITIONAL FLIGHT DATA, UPDATED HOLD FROM 029 TO 034.60 - UPDATED HOLDING COURSE.
13. UPDATED FAS OBS FROM 1069 TREE TO 1288 TOWER & 1090 PWR LN - OBS UPDATED.
14. ADDED CHART CIRCLING ICON - NEW CIRCLING RADII APPLIED.
15. UPDATED FAC CROSSES FROM ABEAM THLD RWY 18 149 RIGHT OF CENTERLINE TO FAC CROSSES RWY C/L EXTENDED 3000 FT FROM THLD.- RECALCULATED FAC.
16. ADDED VDP - VISUAL DESCENT AUTHORIZED.
17. UPDATED VDA FROM ALO 2.53 DME TO RW18: 3.02/40 TO IXKUJ TO RW18:3.00/42.3 - RECALCULATED.
18. UPDATED ALTERNATE MINS FROM NA WHEN LOCAL WX NOT AVAIL TO STANDARD @ - ON WMSCR
19. UPDATED MISSED APPROACH FROM CLIMBING RIGHT TURN TO 2800 VIA ALO VOR/DME R-209 TO NEVIS INT AND HOLD TO CLIMBING RIGHT TURN TO 2800 ON ALO VOR/DME R-215 TO NEVIS INT AND HOLD. - MAG VAR.
20. ADDED CHART NOTE: RWY 18 HELICOPTER VISIBILITY REDUCTION BELOW 3/4 SM NOT AUTHORIZED - 34:1 PENETRATIONS



<u>AIRPORT</u> WATERLOO RGNL	<u>AIRPORT ID</u> KALO	<u>PROCEDURE NAME</u> VOR RWY 18	<u>ORIGINAL/AMENDMENT</u> 9	<u>CITY</u> WATERLOO	<u>STATE</u> IA
<u>COORDINATED WITH:</u>					
A4A <input checked="" type="checkbox"/> ALPA <input checked="" type="checkbox"/> AOPA <input checked="" type="checkbox"/> APA <input checked="" type="checkbox"/> HAI <input type="checkbox"/> NBAA <input checked="" type="checkbox"/> <u>OTHER:</u> ZAU, WATERLOO ATCT, AMGR, ALO APP CON					
<u>FLIGHT CHECKED BY</u>			<u>OFFICE</u>	<u>DATE</u>	
<u>DEVELOPED BY</u>			<u>OFFICE</u>	<u>DATE</u>	
HEIDI SNIDER			AJV-5423	05/08/2018	
<u>APPROVED BY</u>			<u>OFFICE</u>	<u>DATE</u>	<u>TITLE</u>
JULIE MORGAN			AJV-5420		MANAGER



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

<u>AIRPORT</u>	<u>AIRPORT ID</u>	<u>PROCEDURE NAME</u>	<u>AMDT NO.</u>	<u>CITY</u>	<u>STATE</u>	<u>AIRPORT ELEVATION</u>	<u>FACILITY</u>
WATERLOO RGNL	KALO	VOR RWY 18	9	WATERLOO	IA	873	ALO

PART A: OBSTRUCTION DATA SEGMENTS

FINAL: PT

FROM 10 NM TO IXKUJ/ALO VOR/DME 2.72 DME

<u>RNP</u>	<u>DISTANCE</u>	<u>PAT</u>	<u>MAP</u>	<u>HAT</u>			<u>HMAS</u>				
	7.28					729					
<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 (19-052821)	424255.15N/0922604.04W	1288	50	20	2C	300					1600

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:

FINAL: STEPDOWN

FROM IXKUJ/ALO VOR/DME 2.72 DME TO ALO VOR/DME

<u>RNP</u>	<u>DISTANCE</u>	<u>PAT</u>	<u>MAP</u>	<u>HAT</u>	<u>HMAS</u>						
	2.72		ALO VOR/DME	469							
<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>
2.TRANSMISSION_LINE (19-028139)	423532.28N/0922431.40W	1090	20	3	1A	250					1340

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:



PROCEDURE TURN

FROM

ALO VOR/DME

TO

10 NM

<u>RNP</u>	<u>DISTANCE</u>	<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.TOWER (19-001013)	424630.10N/0922020.58W	1441	20	3	1A	1000					2500
4.TERRAIN	425100.00N/0922533.00W	1083 (1100)								AS1500	2600

COMPUTATIONS

ALT

KIAS

KTAS

HAA

VKTW

TR

BA

DTA

COURSE CHANGE

DVEB

VEB OCS

RF CENTER FIX/DISTANCE

SEGMENT
REMARKS:

MISSED APPROACH

FROM

ALO VOR/DME

TO

NEVIS INT/10.98 DME

<u>RNP</u>	<u>DISTANCE</u>	<u>PAT</u>	<u>MAP</u>	<u>HAT</u>			<u>HMAS</u>				
							1090				
<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>
							ASC				2800
5.TOWER (19-001405)	422925.90N/0923011.60W	1252	20	20	1C	1000					2300
6.TERRAIN	422812.00N/0923400.00W	1027 (1000)								AS1500	2500

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

OBSTRUCTION	COORDINATES	RADIUS	HAA	ELEV MSL	HORZ	VERT	AC	ROC	OCS	ADJUSTMENTS	MIN ALT
CATEGORY A											
7.TOWER (19-002099)	423217.69N/0922551.64W	1.30	727/487	1057	20	3	1A	300		SI	1600/1360
CATEGORY B											
2.TRANSMISSION_LINE (19-028139)	423532.28N/0922431.40W	1.84	727/527	1090	20	3	1A	300		SI	1600/1400
CATEGORY C											
8.STACK (19-000357)	423136.96N/0922624.45W	2.89	727/607	1170	20	3	1A	300		SI	1600/1480
CATEGORY D											
9.TOWER (19-001449)	423048.00N/0922829.00W	3.77	727/727	1233	500	50	5D	300		AC50/AC50	1600/1600

CIRCLING REMARKS:

MSA

CENTER

ALO VOR/DME

RADIUS

25

SECTOR	OBSTRUCTION	COORDINATES	BEARING	DISTANCE	ELEV MSL	HORZ	VERT	AC	ROC	OCS	ADJUSTMENTS	MIN ALT
360-090	TWR (19-000866)	424056.72N/0915250.68W	072	24.2	2117	100	20	3C	1000			3200
090-180	TWR (19-000408)	422402.36N/0915036.88W	111	26.4	2979	250	50	4D	1000			4000
180-360	WTG (19-027476)	422536.33N/0925923.21W	254	27.4	1582	50	20	2C	1000			2600

MSA REMARKS:

NOTES/EXPLANATIONS FROM PROCEDURE SEGMENTS:

PART B: SUPPLEMENTAL DATA

COMMUNICATIONS WITH

ZAU ARTCC, ALO TOWER, ALO TOWER



<u>AIRPORT</u>	<u>AIRPORT ID</u>	<u>PROCEDURE NAME</u>	<u>AMDT NO.</u>	<u>CITY</u>	<u>STATE</u>	<u>AIRPORT ELEVATION</u>	<u>FACILITY</u>
WATERLOO RGNL	KALO	VOR RWY 18	9	WATERLOO	IA	873	ALO

<u>WX SERVICE</u>	<u>LOCATION</u>	<u>HRS OPERATION</u>	<u>ALTIMETER SOURCE</u>	<u>DISTANCE</u>	<u>SERVICE-A</u>	<u>ADJUSTMENTS</u>
ASOS	KALO	24	KALO	0	Y	0
<u>BACK-UP WX SERVICE</u>	<u>LOCATION</u>	<u>HRS OPERATION</u>	<u>ALTIMETER SOURCE</u>	<u>DISTANCE</u>	<u>SERVICE-A</u>	<u>ADJUSTMENTS</u>
AWOS-3	KIIB	24	KIIB	20.896	Y	62

WX REMARKS:
RASS PRESSURE PATTERNS THE SAME
KALO 873 KIIB 966
RA=61.04

<u>PRIMARY NAVAID</u>	<u>MONITOR POINT</u>	<u>HRS OPERATION</u>	<u>CAT</u>
ALO VOR/DME	MOCC	24	1

<u>APPROACH AND RUNWAY LIGHTING SYSTEM</u>	<u>RUNWAY MARKINGS</u>	<u>RUNWAY VISUAL RANGE</u>
RW18 - MIRL (PCL), REIL, VASI-4L (PCL)	NPI-F	
RW36 - MIRL (PCL), REIL, VASI-4L (PCL)	NPI-F	
RW06 - MIRL (PCL), REIL, VASI-4L (PCL)	NPI-G	
RW24 - MIRL (PCL), REIL, VASI-4L (PCL)	NPI-G	
RW30 - MALS (PCL), HIRL (PCL), VASI-4L	NPI-G	ROLL OUT
RW12 - MALSR (PCL), HIRL (PCL), PAPI-4L	PIR-G	APPROACH

<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>
					3.00	42.3

FINAL APPROACH COURSE AIMING

RUNWAY THRESHOLD	<input type="checkbox"/>	3000	FT FROM THRESHOLD	DISPLACED THRESHOLD DISTANCE
ON CENTERLINE	<input checked="" type="checkbox"/>		FT FROM CENTERLINE	

CRITICAL TEMPERATURES

<u>CRITICAL LOW</u>	<u>CRITICAL HIGH</u>	<u>ACT</u>	<u>APT ISA</u>

CRITICAL TEMPERATURE REMARKS:

"VISUAL PORTION OF FINAL" PENETRATIONS

Final Type	S-18
20:1	
ASC	

QUALITY
25
CHECKED

FAA Form 8260-9 / (11/16) Supersedes Previous Edition

Electronic Version

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Final Type	S-18									
34:1										
980 MSL TREE	423422.13N-0922354.69W	38.23	983 MSL TREE	423423.40N-0922355.35W	37.69					
978 MSL TREE	423422.71N-0922355.79W	34.85	978 MSL TREE	423423.74N-0922355.28W	31.66					
959 MSL TREE	423418.90N-0922404.44W	29.66	953 MSL TREE	423416.67N-0922358.86W	28.58					
959 MSL TREE	423419.26N-0922357.05W	26.40	964 MSL TREE	423421.21N-0922357.82W	25.88					
959 MSL TREE	423419.65N-0922357.16W	25.28	953 MSL TREE	423417.73N-0922357.38W	25.01					
951 MSL TREE	423417.35N-0922359.74W	24.83	945 MSL TREE	423415.04N-0922356.39W	24.65					
956 MSL TREE	423418.89N-0922357.25W	24.55								

HELICOPTER 'VISUAL PORTION OF FINAL' PENETRATIONS

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

PART C: GENERAL REMARKS:
PRECIPITOUS TERRAIN EVALUATION COMPLETED.

NOTE: WHEN LOCAL ALTIMETER SETTING NOT RECEIVED USE INDEPENDENCE ALTIMETER SETTING: INCREASE ALL MDAS 80 FEET AND INCREASE S-18 CAT C/D AND CIRCLING CAT C/D VISIBILITY 1/2 SM.

NOTE: VDP NA WHEN USING INDEPENDENCE ALTIMITER ALTIMETER SETTING.

70 FT VEGETATION PER FPT CHECKLIST
ORDER 8260.3, VOLUME 1, CHAPTER 2, NEW CIRCLING CRITERIA APPLIED.



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	FACILITY	TO 1000FT POINT	7.00
WIDTH OF	FINAL	SEGMENT AT 1000FT POINT	4.80
TRUE COURSE OF	FINAL	SEGMENT CONTAINING 1000FT POINT	177.51
HIGH TERRAIN IN	FINAL	SEGMENT CONTAINING 1000FT POINT	1079
DISTANCE FROM	FACILITY	TO 1500FT POINT	7.00
WIDTH OF	FINAL	SEGMENT AT 1500FT POINT	4.80
TRUE COURSE OF	FINAL	SEGMENT CONTAINING 1500FT POINT	177.51
HIGH TERRAIN IN	FINAL	SEGMENT CONTAINING 1500FT POINT	1079

THRESHOLD
COORDINATES
(IF STR-IN)423357.14N/0922405.27W

ARP COORDINATES423325.50N/0922401.20W

RUNWAY APCH END
AND DIST FURTHEST
FROM ARP

RUNWAY 12 DISTANCE 0.74 NM

FAF
COORDINATES

FIX NAME
COORDINATES

WATERLOO VOR/DME: 423323.39N/0922356.13W

REMARKS



<u>AIRPORT</u>	<u>AIRPORT ID</u>	<u>PROCEDURE NAME</u>	<u>AMDT NO.</u>	<u>CITY</u>	<u>STATE</u>	<u>AIRPORT ELEVATION</u>	<u>FACILITY</u>
WATERLOO RGNL	KALO	VOR RWY 18	9	WATERLOO	IA	873	ALO
PART E: PREPARED BY							
<u>NAME</u>				<u>OFFICE</u>	<u>DATE</u>		<u>TITLE</u>
HEIDI SNIDER				AJV-5423	05/08/2018		AERONAUTICAL INFORMATION SPECIALIST

