

**FEDERAL AVIATION ADMINISTRATION  
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.

<u>AIRPORT</u> DES MOINES INTL	<u>AIRPORT ID</u> KDSM	<u>PROCEDURE NAME</u> VOR RWY 23	<u>ORIGINAL/AMENDMENT</u> ORIG-B	<u>CITY</u> DES MOINES	<u>STATE</u> IA
<u>AIRPORT ELEVATION</u> 958	<u>TDZE</u> 939	<u>SUPERSEDED</u> VOR/DME RWY 23	<u>ORIGINAL/AMENDMENT</u> ORIG-A	<u>DATED</u> 01/18/2007	<u>MAG VAR</u> 3E
<u>FACILITY</u> TNU	<u>COORDINATES OF FACILITIES</u>	<u>ACTUAL EFFECTIVE DATE</u> 20 JUNE 2019	<u>REQUIRED EFFECTIVE DATE</u> ROUTINE	<u>CANCEL/SUSPEND</u>	<u>EPOCH YEAR</u> 1995

**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>
TNU VOR/DME	IAF	EXPEN/17.00 DME					236.00	17.00	3000
EXPEN/17.00 DME	IF	DIPPO/23.00 DME					236.00	6.00	2700

**MISSED APPROACH**

**MAP:**  
TNU 28.47 DME

**MISSED APPROACH INSTRUCTIONS:**

CLIMB TO 2000 THEN CLIMBING LEFT TURN TO 3000 ON HEADING 200 AND ON DSM VORTAC R-254 DIRECT MIDLE INT/DSM 12.01 DME AND HOLD.

**ALTERNATE MISSED APPROACH INSTRUCTIONS:**

**PROFILE:**

- PT      **SIDE OF COURSE**                      **OUTBOUND**                      **FT WITHIN**                      **MILES OF (IAF)**
- PROFILE STARTS AT TNU VOR/DME
- 3. FAC:** 236.00      **FAF:** DIPPO/23.00 DME                      **DIST FAF TO MAP:**                      **DIST FAF TO THLD:** 5.47
- 4. MIN ALT:** TNU VOR/DME 3000, EXPEN/17.00 DME 3000, DIPPO/23.00 DME 2700
- 8. MSA FROM:** TNU VOR/DME 180-360 4000, 360-180 2700 (30NM)

**EQUIPMENT REQUIREMENTS NOTES:**

DME REQUIRED.

**NOTES:**

CHART NOTE: CIRCLING RWY 5 NA AT NIGHT.  
CHART NOTE: RWY 23 HELICOPTER VISIBILITY REDUCTION BELOW 3/4 SM NOT AUTHORIZED.  
CHART PLANVIEW NOTE: NOPT FOR ARRIVAL ON TNU VOR/DME AIRWAY RADIALS 031 CW 081.



**ADDITIONAL FLIGHT DATA:**

CHART ARRIVAL HOLDING AT TNU VOR/DME: HOLD NE, RT, 236.01 INBOUND, 3000  
 CHART CIRCLING ICON.  
 DIPPO TO RW23: 2.95/56.  
 CHART FAS OBST: 1456 BUILDING 413515N/0933743W.  
 HOLD W, RT, 073.94 INBOUND

**MINIMUMS:**

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

**ALTERNATE:** NA  STANDARD - CAT C 800-2 1/2, CAT D 900-2 1/2

<b>CATEGORY:</b>	<b>A</b>			<b>B</b>			<b>C</b>			<b>D</b>			<b>E</b>		
<b>FINAL TYPE</b>	<b>DA/MDA</b>	<b>VIS</b>	<b>HAT/HAA</b>												
S-23	1720	1	781	1720	1 1/4	781	1720	2 1/2	781	1720	2 1/2	781			
CIRCLING	1720	1	762	1720	1 1/4	762	1720	2 1/2	762	1760	2 1/2	802			

**CHANGES - REASONS**

1. UPDATED ALTERNATE MINIMUMS FROM CAT C 800-2 1/4, CAT D 800-2 1/2 TO CAT C 800- 2 1/2, CAT D 900-2 1/2 - ADDED NEW CIRCLING CRITERIA AND IAW 8260.19H PARA 8-6-11 B.
2. PROCEDURE NAME CHANGED FROM VOR/DME RWY 23 TO VOR RWY 23 - IAW 8260.3D PARA SECTION 1-6 NAMING CONVENTION.
3. UPDATED TERMINAL ROUTE FROM TNU VOR/DME TO EXPEN FROM 236.01 TO 236.00 - UPDATED SURVEY DATA FOR TNU VOR/DME, LAT/LONGS CHANGED MOVING THE FACILITY 26.94 FEET SOUTH.
4. UPDATED TERMINAL ROUTE FROM EXPEN TO DIPPO FROM 235.80 TO 236.00 - UPDATED SURVEY DATA FOR TNU VOR/DME, LAT/LONGS CHANGED MOVING THE FACILITY 26.94 FEET SOUTH.
5. UPDATED MISSED APPROACH INSTRUCTIONS FROM CLIMB TO 2000 THEN CLIMBING LEFT TURN TO 3000 VIA HEADING 200 AND ON DSM VORTAC R-254 TO MIDDLE INT/DSM 12.01 DME AND HOLD TO CLIMB TO 2000 THEN CLIMBING LEFT TURN TO 3000 ON HEADING 200 AND ON DSM VORTAC R-254 DIRECT MIDDLE INT/DSM 12.01 DME AND HOLD - IAW 8260.19H PARA 8-6-6 D (7).
6. MIDDLE HOLDING COURSE INBOUND COURSE CHANGED FROM 073.95 TO 073.94 - MATCH CURRENT 8260-2 FLIGHT CHECKED HOLDING PATTERN.
7. CHANGED VERTICAL DESCENT ANGLE FROM DIPPO TO RWY23: 2.95/50 TO DIPPO TO RWY23: 2.95/56 - IAW 8260.19H PARA 8-6-10 Q AND VGSI TCH CHANGED TO 56.6.
8. FINAL APPROACH COURSE CHANGED FROM 236.01 TO 236.00 - UPDATED SURVEY DATA FOR TNU VOR/DME, LAT/LONGS CHANGED MOVING THE FACILITY 26.94 FEET SOUTH.
9. CHANGED CHART PLANVIEW NOTE: NOPT FOR ARRIVAL ON TNU VOR/DME AIRWAY RADIALS 031 CW TO 081 TO CHART PLANVIEW NOTE: NOPT FOR ARRIVAL ON TNU VOR/DME AIRWAY RADIALS 031 CW 081 - IAW 8260.19H PARA 8-2-5 G (2).
10. DELETED CHART PROFILE NOTE: VGSI AND DESCENT ANGLES NOT COINCIDENT - IAW 8260.19H PARA 8-6-9 M AND UPDATED VGSI TCH CHANGING FROM 50 TO 56 FEET.
11. ADDED EQUIPMENT REQUIREMENT NOTE DME REQUIRED - IAW 8260.19H PARA 8-6-8.
12. ADDED TO ADDITIONAL FLIGHT DATA CHART CIRCLING ICON - MATCHED RNAV (GPS) RWY 23 AND IAW 8260.19H PARA 8-6-10 T.
13. S-23 AND CIRCLING CAT C VISIBILITY CHANGED FROM 2 1/4 TO 2 1/2 - IAW 8260.3 CHAPTER 3 SECTION 3-3.
14. CIRCLING HAA MINIMUMS CHANGED FROM CAT A/B/C FROM 763 TO 762 - AIRPORT ELEVATION CHANGED FROM 957 TO 957.5.
15. CIRCLING CAT D MINIMUMS CHANGED FROM MDA/HAA 1720/763 TO 1760/802 - NEW CIRCLING CRITERIA APPLIED.
16. ADDED CHART NOTE RWY 23 HELICOPTER VISIBILITY REDUCTION BELOW 3/4 SM NOT AUTHORIZED - IAW 8260.19H PARA 8-6-11 K (3).
17. DELETED CHART NOTE: WHEN VGSI INOP, PROCEDURE NA AT NIGHT - IAW 8260.19H PARA 8-6-11 O (2) (H).
18. ADDED CHART NOTE: CIRCLING RWY 5 NA AT NIGHT - IAW 8260.19H PARA 8-6-11 O (2) (G).
19. ADDED MAX ALTITUDE 10000 AT HOLD-IN-LIEU - IAW 8260.19H PARA 8-6-7 B (2).

03/01/19: THIS IS A CORRECTED COPY OF THE FORM APPROVED ON 02/25/19.

1. DELETED HOLD-IN-LIEU AT NEWTON VOR/DME FROM LINE 2 AND ADDED PROFILE STARTS AT TNU VOR/DME.
2. ADDED TO ADDITIONAL FLIGHT DATA: CHART ARRIVAL HOLDING AT TNU VOR/DME: HOLD NE, RT, 236.01 INBOUND, 3000.



**COORDINATED WITH:**

A4A  ALPA  AOPA  APA  HAI  NBAA  OTHER: ZAU, ZMP, DSM APP, DSM ATCT, AMGR, IA AERO, ATA

**FLIGHT CHECKED BY**

PROCESSED IAW AIRCRAFT OPERATIONS GROUP (AJW-33) MEMO, OCTOBER 3, 2018, SUBJECT:  
FLIGHT INSPECTION REVIEW NOT REQUIRED

**OFFICE**

**DATE**

*Digitally signed by*

*Digitally signed by*

**DEVELOPED BY**

FRANK JACKSON JR

**FRANK JACKSON**

Mar 10, 2019

**DONALD H LANIER**

Mar 20, 2019

**OFFICE**

AJV-A431

**DATE**

01/25/2019

**APPROVED BY**

PATRICK MULQUEEN

*Digitally signed by*

**DONALD H LANIER**

Mar 20, 2019

**OFFICE**

AJV-A430

**DATE**

**TITLE**  
MANAGER

