

**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 ID</u> CFS	<u>PROCEDURE NAME</u> RNAV (GPS) RWY 24	<u>ORIGINAL/AMENDMENT</u> 2A	<u>CITY</u> CARO	<u>STATE</u> MI		
<u>AIRPORT ELEVATION</u> 704	<u>TDZE</u> 701	<u>SUPERSEDED</u> RNAV (GPS) RWY 24	<u>ORIGINAL/AMENDMENT</u> 2	<u>DATED</u> 05/24/2018	<u>MAG VAR</u> 8W	<u>EPOCH YEAR</u> 2020
<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>
MBS VOR/DME		RAYOL		TF	FO	1.00	094.34	35.45	3000
WINTO		RAYOL		TF	FO	1.00	001.44	12.30	2400
RAYOL	IF/IAF	KAYET		TF	FB	1.00	238.57	5.00	2300
KAYET	FAF	LIYIG/2.60 NM TO RW24		TF	FB	0.30	238.51	2.30	
LIYIG/2.60 NM TO RW24		RW24	MAP	TF	FO	0.30	238.51	2.60	
RW24	MAP	1104 MSL		CA			238.51		
1104 MSL		BIRRS		DF	FO	1.00			3100

MISSED APPROACH

MAP:

LNAV: RW24

MISSED APPROACH INSTRUCTIONS:

CLIMBING RIGHT TURN TO 3100 DIRECT BIRRS AND HOLD.

ALTERNATE MISSED APPROACH INSTRUCTIONS:

PROFILE:

- PT SIDE OF COURSE OUTBOUND FT WITHIN MILES OF (IAF)
- HOLD NE RAYOL, RT, 238.57 INBOUND, 2300 FT. IN LIEU OF PT (IAF), MAX 6000.
- FAC: 238.51 FAF: KAYET DIST FAF TO MAP: 4.90 DIST FAF TO THLD: 4.90
- MIN ALT: RAYOL 2300, KAYET 2300, LIYIG/2.60 NM TO RW24 1560
- DIST TO THLD FROM OM: MM: IM: 150 HAT: GS ANT: OM: MM: IM:
- MIN GP INCPT: GP ALT AT FAF:
- GP ANGLE: 34:1: IS NOT CLEAR 20:1: IS NOT CLEAR TCH:
- MSA FROM: RW24 3100



PBN REQUIREMENTS NOTE:

DME/DME RNP-0.3 NA.

NOTES:

CHART PROFILE NOTE: VGSI AND DESCENT ANGLES NOT COINCIDENT (VGSI ANGLE {ANGLE}/TCH {FEET}).
CHART NOTE: CIRCLING NA TO RWYS 13 AND 31.
CHART NOTE: RWY 24 HELICOPTER VISIBILITY REDUCTION BELOW 1 SM NOT AUTHORIZED.
CHART NOTE: PROCEDURE NA AT NIGHT.

CHART PLAN VIEW NOTE: PROCEDURE NA FOR ARRIVAL ON MBS VOR/DME AIRWAY RADIAL 016.

ADDITIONAL FLIGHT DATA:

HOLD NW, RT, 137.00 INBOUND.
FAS OBST: 888 TREE (26-047647) 432918N/0832504W.
KAYET TO RW24: 3.00/40.
CHART CIRCLING ICON.

MINIMUMS:

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

ALTERNATE: NA ☐ STANDARD - CAT C 900-2 3/4, NA WHEN LOCAL WEATHER NOT AVAILABLE.

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	1140	1	439	1140	1	439	1140	1 1/4	439		NA				
CIRCLING	1200	1	496	1200	1	496	1600	2 3/4	896		NA				

CHANGES - REASONS

1. TERMINAL ROUTES: LINE 1 CHANGED RNP VALUE FROM "2.00" TO 1.00" - PER CRITERIA 8260.58C 1-2-4 (C).
2. TERMINAL ROUTES: LINE 2 CHANGED RNP VALUE FROM "2.00" TO 1.00" - PER CRITERIA 8260.58C 1-2-4 (C).
3. PROFILE: LINE 2 CHANGED FROM "HOLD NE RAYOL, RT, 238.57 INBOUND, 2300 FT. IN LIEU OF PT (IAF)" TO "HOLD NE RAYOL, RT, 238.57 INBOUND, 2300 FT. IN LIEU OF PT (IAF), MAX 6000" - ADDED MAX ALTITUDE PER CRITERIA 8260.19J 8-6-7 (B) (2).
4. MINIMUMS: ALTERNATE MINIMUMS CHANGED FROM "STANDARD" TO "STANDARD - CAT C 900-2 3/4, NA WHEN LOCAL WEATHER NOT AVAILABLE" - CIRCLING MDA CAT C RAISED DUE TO NEW CONTROLLING OBSTACLE.
5. MINIMUMS: AMENDED CIRCLING CAT C FROM "MDA 1220/VIS 1 1/2" TO "MDA 1600/VIS 2 3/4" - DUE TO NEW OBSTACLE SURVEY.
6. MINIMUMS: UPDATED LNAV HAT FROM "440" TO "439" ALL CATS - TDZE CHANGED PER NEW AIRNAV DATA.
7. MINIMUMS: AMENDED CIRCLING CAT C HAT FROM/HAA FROM "516" TO "896" - NEW OBSTACLE SURVEY.
8. ADDITIONAL FLIGHT DATA: UPDATED FAS OBSTACLE FROM "CHART FAS OBST: 888 TREE (26-047647) 432918N/0832504W" TO "FAS OBST: 888 TREE (26-047647) 432918N/0832504W" - REMOVED "CHART" PER CRITERIA 8260.19J 8-6-11 (C).
9. PROFILE: LINE #7 ADDED "20:1 IS NOT CLEAR" - PER CRITERIA 8260.19J 8-6-7 (G)(3).
10. NOTES: UPDATED PLAN VIEW NOTE FROM "PROCEDURE NA FOR ARRIVAL ON MBS VOR/DME AIRWAY RADIAL 016 CW 163" TO "PROCEDURE NA FOR ARRIVAL ON MBS VOR/DME AIRWAY RADIAL 016" - AIRWAY RADIAL 163 NO LONGER EXIST.



COORDINATED WITH:

A4A

ALPA

X

AOPA

X

APA

HAI

NBAA

X

OTHER:

ZOB, MBS APP CON, AMGR

FLIGHT CHECKED BY MA

SCOTT WIEBE

Digitally signed by

DAVID DANNER

Mar 03, 2025

OFFICE

AJF

DATE

03/02/2025

DEVELOPED BY
TRAVIS BRISTOW

Digitally signed by
TRAVIS D BRISTOW
Dec 16, 2024

OFFICE

AJV-A421

DATE

11/05/2024

APPROVED BY
DAVID DANNER

Digitally signed by
DAVID DANNER
Mar 03, 2025

OFFICE

DATE

TITLE
MANAGER



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

<u>AIRPORT ID</u> CFS	<u>PROCEDURE NAME</u> RNAV (GPS) RWY 24	<u>AMDT NO.</u> 2A	<u>CITY</u> CARO	<u>STATE</u> MI	<u>AIRPORT ELEVATION</u> 704	<u>FACILITY</u> RNAV
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PART A: OBSTRUCTION DATA SEGMENTS

FEEDER

FROM MBS VOR/DME **TO** RAYOL

RNP 1.00 DISTANCE 35.45 PAT MAP HAT HMAS

<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>
TOWER (26-002919)	433233.12N/0833936.95W	1649	50	20	2C	1000				AT351	3000
TERRAIN	433315.00N/0831954.00W	817 (800)								AS1500	2300

COMPUTATIONS

ALT KIAS KTAS HAA VKTW TR BA DTA COURSE CHANGE DVEB VEB OCS RF CENTER FIX/DISTANCE

SEGMENT REMARKS:

FEEDER

FROM WINTO **TO** RAYOL

RNP 1.00 DISTANCE 12.30 PAT MAP HAT HMAS

<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>
TOWER (26-002847)	432447.00N/0831512.00W	1139	250	50	4D	1000					2200
TERRAIN	432242.00N/0831630.00W	919 (900)								AS1500	2400

COMPUTATIONS

ALT KIAS KTAS HAA VKTW TR BA DTA COURSE CHANGE DVEB VEB OCS RF CENTER FIX/DISTANCE

SEGMENT REMARKS:



INTERMEDIATE

FROM

RAYOL (IF/IAF)

TO

KAYET

RNP

1.00

DISTANCE

5.00

PAT

MAP

HAT

HMAS

OBSTRUCTION	COORDINATES	ELEV MSL	HORZ	VERT	AC	ROC	OCS	CG	CGTA	ADJUSTMENTS	MIN ALT
TOWER (26-001541)	433158.00N/0832137.00W	1229	500	50	5D	500					1800
TERRAIN	433315.00N/0831954.00W	817 (800)								AS1500	2300

COMPUTATIONS

ALT

KIAS

KTAS

HAA

VKTW

TR

BA

DTA

COURSE CHANGE

DVEB

VEB OCS

RF CENTER FIX/DISTANCE

SEGMENT REMARKS:

FINAL: LNAV

FROM

KAYET

TO

LIYIG/2.60 NM TO RW24

RNP

0.30

DISTANCE

2.30

PAT

MAP

HAT

HMAS

OBSTRUCTION	COORDINATES	ELEV MSL	HORZ	VERT	AC	ROC	OCS	CG	CGTA	ADJUSTMENTS	MIN ALT
TOWER (26-002140)	433012.90N/0832329.73W	1185	20	3	1A	250				RA70 DG55	1560

COMPUTATIONS

ALT

KIAS

KTAS

HAA

VKTW

TR

BA

DTA

COURSE CHANGE

DVEB

VEB OCS

RF CENTER FIX/DISTANCE

SEGMENT REMARKS:



FINAL: LNAV STEPDOWN

FROM

LIYIG/2.60 NM TO RW24

TO

RW24

<u>RNP</u>	<u>DISTANCE</u>	<u>PAT</u>	<u>MAP</u>	<u>HAT</u>	<u>HMAS</u>
0.30	2.60		RW24	439	

<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>
TREE (26-047647)	432917.62N/0832503.82W	888	20	3	1A	250					1140

COMPUTATIONS

ALT

KIAS

KTAS

HAA

VKTW

TR

BA

DTA

COURSE CHANGE

DVEB

VEB OCS

RF CENTER FIX/DISTANCE

SEGMENT REMARKS:

HOLD-IN-LIEU OF PT

FROM

RAYOL

TO

P-5

<u>RNP</u>	<u>DISTANCE</u>	<u>PAT</u>	<u>MAP</u>	<u>HAT</u>	<u>HMAS</u>
		P-5			

<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>
TOWER (26-001541)	433158.00N/0832137.00W	1229	500	50	5D	1000					2300
TERRAIN	433315.00N/0831954.00W	817 (800)								AS1500	2300

COMPUTATIONS

ALT

KIAS

KTAS

HAA

VKTW

TR

BA

DTA

COURSE CHANGE

DVEB

VEB OCS

RF CENTER FIX/DISTANCE

SEGMENT REMARKS:



MISSED APPROACH: LNAV

FROM

RW24

TO

BIRRS

<u>RNP</u> 0.30-1.00	<u>DISTANCE</u>	<u>PAT</u>	<u>MAP</u>			<u>HAT</u>	<u>HMAS</u> 1040				
<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				3100
WINDMILL (26-130532)	432723.71N/0833100.64W	1237	250	50	4D	1000					2300
TERRAIN	432645.00N/0833212.00W	775 (800)								AS1500	2300

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											
TREE (26-093487)	432814.07N/0832726.28W	1.30	496	891	50	20	2C	300			1200
CATEGORY B											
TREE (26-039652)	432911.64N/0832612.22W	1.83	496	899	50	20	2C	300			1200
CATEGORY C											
WINDMILL (26-130532)	432723.71N/0833100.64W	2.88	896	1237	250	50	4D	300		AC50	1600

CIRCLING REMARKS:

MSA

CENTER

RW24

RADIUS

25

SECTOR	OBSTRUCTION	COORDINATES	BEARING	DISTANCE	ELEV MSL	HORZ	VERT	AC	ROC	OCS	ADJUSTMENTS	MIN ALT
360-360	TWR (26-000558)	431301.00N/0834317.00W	228	19.1	2013	250	50	4D	1000			3100

MSA REMARKS:

NOTES/EXPLANATIONS FROM PROCEDURE SEGMENTS:

100 FT VEGETATION USED.

TAA NOT DEVELOPED PER ATC.



PART B: SUPPLEMENTAL DATA

COMMUNICATIONS WITH

ZOB ARTCC, MBS APP CON, LAN FSS

WX SERVICE AWOS-3	LOCATION CFS	HRS OPERATION 24/YES	ALTIMETER SOURCE CFS	DISTANCE 0	WMSCR Y	ADJUSTMENTS 0
BACK-UP WX SERVICE ASOS	LOCATION MBS	HRS OPERATION 24/YES	ALTIMETER SOURCE MBS	DISTANCE 28.05	WMSCR Y	ADJUSTMENTS 70

WX REMARKS:

RASS PRESSURE PATTERNS THE SAME
KCFS 704, KMBS 668
RA = 69.57.

PRIMARY NAVAID	MONITOR POINT	HRS OPERATION	CAT
APPROACH AND RUNWAY LIGHTING SYSTEM	RUNWAY MARKINGS	RUNWAY VISUAL RANGE	
RW13			
RW31			
RW06 - MIRL (PCL), PAPI-4L (PCL)	NPI-G		
RW24 - MIRL (PCL), PAPI-4L (PCL)	NPI-G		

GLIDESLOPE ANGLE	ELEV RWY THRESHOLD	TCH	ELEV GS ANTENNA	DISTANCE FROM RWY	VGSI ANGLE 3.50	TCH 48.3
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FINAL APPROACH COURSE AIMING

RUNWAY THRESHOLD	X	FT FROM THRESHOLD	DISPLACED THRESHOLD DISTANCE
ON CENTERLINE	X	FT FROM CENTERLINE	

CRITICAL TEMPERATURES

CRITICAL LOW	CRITICAL HIGH	ACT	APT ISA
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CRITICAL TEMPERATURE REMARKS:

"VISUAL PORTION OF FINAL" PENETRATIONS

FINAL TYPE	CIRCLING RWY 06
20:1	
765 TREE (26-048517) 432702.1300N/0832727.1200W (10.89)	741 TREE (26-048736) 432705.0500N/0832724.4000W (4.04)
FINAL TYPE	CIRCLING RWY 24
20:1	

<u>AIRPORT ID</u> CFS		<u>PROCEDURE NAME</u> RNAV (GPS) RWY 24	<u>AMDT NO.</u> 2A	<u>CITY</u> CARO	<u>STATE</u> MI	<u>AIRPORT ELEVATION</u> 704	<u>FACILITY</u> RNAV
762 TREE (26-047538) 432750.2000N/0832618.8900W (16.94)				760 TREE (26-047537) 432750.0300N/0832618.3200W (13.87)			
765 TREE (26-039494) 432747.6000N/0832610.5700W (4.66)				779 TREE (26-047487) 432750.3700N/0832607.8500W (2)			
724 TREE (26-047614) 432747.5200N/0832623.3300W (0.2)							
FINAL TYPE		LNAV					
20:1							
762 TREE (26-047538) 432750.2000N/0832618.8900W (16.94)				760 TREE (26-047537) 432750.0300N/0832618.3200W (13.87)			
765 TREE (26-039494) 432747.6000N/0832610.5700W (4.66)				779 TREE (26-047487) 432750.3700N/0832607.8500W (2)			
724 TREE (26-047614) 432747.5200N/0832623.3300W (0.2)							
FINAL TYPE		LNAV					
34:1							
790 TREE (26-040031) 432756.6900N/0832602.2700W (23.18)				756 TREE (26-047567) 432748.1900N/0832611.4900W (20.72)			
784 TREE (26-040029) 432754.9000N/0832601.8600W (19.89)				755 TREE (26-047565) 432748.8700N/0832611.9500W (19.2)			
746 TREE (26-039392) 432750.5600N/0832617.8300W (16.83)				785 TREE (26-047672) 432758.9700N/0832603.0000W (15.08)			
775 TREE (26-047666) 432752.8600N/0832559.4000W (10.64)				780 TREE (26-047670) 432758.2400N/0832602.3900W (10.44)			
755 TREE (26-047488) 432750.5800N/0832608.5400W (10.25)				763 TREE (26-039745) 432752.4500N/0832605.3300W (9.34)			
767 TREE (26-047658) 432753.6800N/0832604.3300W (9.34)				757 TREE (26-093302) 432751.7400N/0832608.0200W (9.19)			
734 TREE (26-039336) 432748.8300N/0832618.4500W (9.15)				773 TREE (26-047667) 432756.4200N/0832603.3100W (8.43)			
776 TREE (26-047671) 432756.7200N/0832600.6000W (6.33)				754 TREE (26-047636) 432752.4000N/0832608.3600W (5.5)			
720 TREE (26-039564) 432747.7800N/0832623.3300W (5.3)				725 TREE (26-039559) 432746.8900N/0832619.1300W (4.96)			
773 TREE (26-047669) 432754.8600N/0832559.3900W (4.83)				781 TREE (26-047734) 432756.8100N/0832555.4200W (2.5)			
775 TREE (26-047729) 432754.9300N/0832556.8000W (2.37)				734 BUILDING (26-047525) 432747.9000N/0832612.5500W (1.04)			
734 BUILDING (26-022480) 432748.1400N/0832612.6100W (0.69)				734 TREE (26-039496) 432748.3200N/0832612.6400W (0.4)			
734 BUILDING (26-047569) 432748.3300N/0832612.6000W (0.31)				722 TREE (26-047508) 432747.6300N/0832618.8700W (0.13)			
<u>PENETRATIONS REMARKS:</u>							

HELICOPTER 'VISUAL PORTION OF FINAL' PENETRATIONS

and/or

5280-FT "PROCEED VFR" SEGMENT LEVEL SURFACE AREA PENETRATIONS

<u>PENETRATIONS REMARKS:</u>

PART C: GENERAL REMARKS:

VDP NOT ESTABLISHED - OBSTACLES PENETRATE 20:1 SURFACE.

PRECIPITOUS TERRAIN EVALUATION COMPLETED.

3 DEGREES USED TO MATCH PREVIOUS AMENDMENT. VGSI OUT INDEFINITELY, WAIVER NOT REQUIRED.

CONTINGENCY NOTE:
WHEN LOCAL ALTIMETER SETTING NOT RECEIVED, USE MBS ALTIMETER SETTING AND INCREASE ALL MDAS 80 FEET. INCREASE LNAV CAT C VISIBILITY 1/8 SM AND CIRCLING CAT VISIBILITY 1/4 SM.
ORDER 8260.3, 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	THLD	TO 1000FT POINT	3.23
WIDTH OF	FINAL	SEGMENT AT 1000FT POINT	0.92
TRUE COURSE OF	FINAL	SEGMENT CONTAINING 1000FT POINT	230.51
HIGH TERRAIN IN	FINAL	SEGMENT CONTAINING 1000FT POINT	800
DISTANCE FROM	THLD	TO 1500FT POINT	4.90
WIDTH OF	FINAL	SEGMENT AT 1500FT POINT	1.28
TRUE COURSE OF	FINAL	SEGMENT CONTAINING 1500FT POINT	230.51
HIGH TERRAIN IN	FINAL	SEGMENT CONTAINING 1500FT POINT	800

THRESHOLD COORDINATES (IF STR-IN)	432741.62N/0832628.35W
ARP COORDINATES	432731.90N/0832643.61W
RUNWAY APCH END AND DIST FURTHEST FROM ARP	RUNWAY 6 DISTANCE 0.46 NM
FAF COORDINATES	433048.68N/0832116.90W
FIX NAME COORDINATES	

REMARKS

NO ADDITIONAL AIRSPACE REQUIRED.
LIYIG LNAV STEPDOWN FIX 432920.93N/0832343.11W.

PART E: PREPARED BY

NAME	OFFICE	DATE	TITLE
TRAVIS BRISTOW	AJV-A421	11/05/2024	

