Flight Procedures Cover Page	Task Action: FLIGHT CHECK	Task Type : SID	Estimated Chart Date: 05/16/2024	APWS Task ID: B2F597BC46ED4675A47FF4	465C861B989	APWS Project ID: BEE9A4783EBE4340B	BEA5B4391CB2132	
		Enroute: YES	Specialist: Sarmento, April			Agreement Number:		
Airport ID: KDTW			Airport City: DETROIT		State: MI			
Facility ID:	Facility Type:	Flight Inspection Remain New FC Slot	k Type:					
Procedure Comments: FULL AMENDMENT.								
PENDING AIRPORT DATA FOR KYIP. ACT	IVE DATA FOR ALL OTHE	R AIRPORTS.						
WAIVERS (2): 1. TO NOT CHART IF ALTITUDE AT IF FOF 2. AFS-420 MEMO "WAIVER TO FAA ORD		H 1-2-5.3.(C), MAXIMUM	BANK ANGLE" DATED 01/31/2	023.				
KYIP: RWY 27 CONTROLLING OBSTACLE MINIMUMS DID NOT CHANGE.	E 903 FT MSL TOWER (26	-002998) LAT/LONG CHA	NGED FROM 421431.78N/083	3411.47W TO 421431.80N/08	33411.49W (MOVI	ED 2.52 FT NORTHWES	T); TAKEOFF	
KVLL: RWY 28 CONTROLLING OBSTACLI BUILDING (26-003210) 423232.54N/083					2858.00N/083121	9.00W (CLIMB-TO ALTIT	TUDE) TO 905 FT MSL	
KMTC: RWY 19 CLIMB GRADIENT INCRE	ASED FROM 234 FT/NM	TO 235 FT/NM. CONTROI	LLING OBSTACLE DID NOT CH	ANGE 1246 FT MSL TOWER (2	6-001410) 423312	2.00N/0825315.00W (4I	D).	
CONTACT: CASIMIR TABAKA, (405) 954-	7931						NAL/>	
04/09/2024: THIS IS A CORRECTED CO DP ROUTE DESCRIPTION: GROSSE ILE I			ON TRAC 049.05 TO ZETTER"		J ZEDER 0409/202	OVALITL 4 16 Strecker	9 GHECKEP BEGUE	
							OUALITL 8 CHECKEP	

				F	IPC D	ME/DM	E FO	ORM						
PROCEDURE:				A	AIRPORT NAME:			AIRPORT ID:		SPECIAL CONTROL NO:				
ZETTR FOUR (RNAV) DEPARTURE				I	DETROIT METRO WAYNE COUNTY			KDTW		BG-01-224-24				
FAC ID: ZETTR4 CITY: DETROIT						ST: MI				ORIG CHART DATE: 05/16/2024			24	
DFL TYPE:	THIRD PAR	TY: E	EST. TIME ON SITE:	REI	MB. NUM	IBER:		PTS TASK	ID:	·				
PROC/D I YES 1.0 B2F597BC46ED467							46ED4675	A47FF4650	C861B989					
PREFLIGHT NOTES														
REVIEWER: scot	t wiebe									DATE:	03/07/2024	ļ		
COMMENTS:										CHECK (DNE:			
										X FLT	CK REQ	NFCR	REJ	JECT
													YES	NO
	CPV COMPLETE?								X					
PROCEDURE RESULTS														
INSPECTION DAT	TE: C	REW	REW #: N #: INSTRUMENT PROCEDURE STATUS: ARINC CODING:											
03/07/2024		VN219 N69 X SAT SAT W/CHANGES UNSAT SAT/GOLD UNSAT							NSAT					
FLIGHT INSPECTOR SIGNATURE: PRINTED NAME:								NOTAM	NOTAM INITIATED?					
scott wiebe @ 03/07	7/2024 18:29			W	VIEBE, GI	REGORY SCC)TT		YES X NO					NO
FLIGHT INSPECTOR REMARKS: Procedure Satisfactory for GNSS operations, DME/DME awaiting approval by the applicable AJV Operations Support Group.														
DME/DME STATUS:SPECIALIST SIGNATURE:PRINTED NAME:														
X SATUNSATsteven s-ctr rager @ 03/19/2024 15:26Steven Rager														
SPECIALIST REMARKS:														
Procedure SAT for DME/DME/IRU NAV. All DME ESV's for legs flown recorded by Inspection Aircraft all other ESV's certified by TARGETS.														
IN-FLIGHT OBSTACLE REPORT														
OBSTRUCTION ID #: COORDINATES OR LOCATION: GNSS ALTITUDE (MSL): BAROMETRIC ALTITUDE (MSL): H						HEIGHT ABOVE GROUND LEVEL:								

				FIPC	DME/DM	E FOR	RM						
PROCEDURE:				AIRPO	AIRPORT NAME: A			AIRPOI	RT ID:	SPECIAL CONTROL NO:			
ZETTR FOUR (RNAV) DEPARTURE				DETRO	DETROIT METRO WAYNE COUNTY K			KDTW		BG-01-224-24			
FAC ID: ZETTR4 CITY: DETROIT					ST			ST: MI		ORIG CHART DATE: 05/16/2024			
DFL TYPE:	THIRD PAR	ГY: EST	. TIME ON SITE:	REIMB. NU	JMBER:	PTS	S TASK	ID:	•				
PROC/D I YES 1.0 B2F597BC46ED467							46ED4675.	A47FF465C	C861B989				
PREFLIGHT NOTES													
REVIEWER: sco	tt wiebe								DATE:	03/07/2024	-		
COMMENTS:									CHECK C	ONE:			
									X FLT (LT CK REQ 🔲 NFCR 🔲 REJ			JECT
												YES	NO
									CPV COM	1PLETE?		X	
PROCEDURE RESULTS													
INSPECTION DA	TE: C	CREW #: N #: INSTRUMENT PROCEDURE STATUS: ARINC CODING:							:				
03/07/2024	V	/N219	N69	X SAT	SAT W	/CHANGE	ES 🗌	UNSAT		Г 🗌 S	SAT/GOLD		NSAT
FLIGHT INSPECTOR SIGNATURE: PRINTED NAME:								NOTAM INITIATED?					
scott wiebe @ 03/0	7/2024 18:29			WIEBE,	GREGORY SCC	DTT					YES	XI	O
FLIGHT INSPECTOR REMARKS: Procedure Satisfactory for GNSS operations, DME/DME awaiting approval by the applicable AJV Operations Support Group.													
DME/DME STATUS: SPECIALIST SIGNATURE: PRINTED NAME:													
	UNSAT												
SPECIALIST REMARKS:													
IN-FLIGHT OBSTACLE REPORT													
OBSTRUCTION ID #: COORDINATES OR LOCATION: GNSS ALTITUDE (MSL): BAROMETRIC ALT						ALTITUD	E (MSL):	HEIGHT	ABOVE GRO	OUND LI	EVEL:		



Federal Aviation Administration

Memorandum

Date:	January 31, 2023
To:	Instrument Flight Procedure Service Providers WADE EK TERRELL Date: 2023.01.31 09:21:16 -06'00'
From:	Wade E.K. Terrell, Manager, Flight Procedures and Airspace Group
Subject:	Waiver to FAA Order 8260.58C paragraph 1-2-5.c.(3), Maximum bank angle

Background: The Performance Based Navigation (PBN) Aviation Rulemaking Committee (PARC) made a recommendation that the FAA adjust the turn parameters used in PBN instrument flight procedure (IFP) design to reflect modern avionics values. The Flight Procedures and Airspace Group analyzed current avionics specifications with the help of several FAA offices and RTCA SC-227 to identify the new bank angles necessary for current IFP design. The Flight Procedures and Airspace Group then conducted an Operational Safety Review (OSR) for this amendment to bank angle criteria. The outcome of the OSR was that no new hazard is introduced into the National Aerospace System (NAS).

Purpose: This memorandum waives FAA Order 8260.58C, United States Standard for Performance Based Navigation (PBN) Instrument Procedure Design, paragraph 1-2-5.c.(3) and authorizes use of a maximum bank angle of 23 degrees above FL195 up to FL245 and a maximum bank angle of 16 degrees above FL245.

This waiver remains in effect until rescinded. No additional waiver request action is required. Please direct all inquiries to Thomas J. Nichols, Standards Section Manager, Flight Procedures and Airspace Group at 405-954-1171 or <u>thomas.j.nichols@faa.gov</u>

1. FLIGHT PROCEDURE IDENTIFICATION:

Detroit, MI (KDTW) ZETTR (RNAV) SID

2. WAIVER REQUIRED AND APPLICABLE STANDARD:

Waiver required to not chart IF altitude at the IF for radar vectors (RV). Order 8260.46J Appendix E, Section 1, para 2m(3). "Document the minimum crossing altitude at the IF on RNAV Radar departure procedures as follows: CHART: MINIMUM CROSSING ALTITUDE AT (RNAV IF)-(Altitude)."

3. REASON FOR WAIVER (JUSTIFICATION FOR NONSTANDARD TREATMENT):

Adding unnecessary altitudes at the "IF" on procedures when they are not needed creates unnecessary workload based on the type of climb clearance that is issued. If the altitude restriction at the "IF" is to be adhered to for aircraft departing from DETROIT METRO WAYNE COUNTY AIRPORT (DTW), then after the aircraft is airborne ATC must issue "CLIMB VIA SID EXCEPT MAINTAIN (altitude)". With this procedure, it's unnecessary to add an altitude restriction at FLOKA as the aircraft will be issued an initial departure clearance containing an altitude "AS ASSIGNED BY ATC" and will be receiving radar vectors to the waypoint FLOKA to join the procedure. When aircraft depart, ATC must ensure they are at or above the Minimum Vectoring Altitudes (MVA), therefore the aircraft is always operating in airspace at an altitude above any terrain obstacles.

Adding an unnecessary altitude at FLOKA creates workload for pilots as it could create a climb gradient higher than 200 feet per NM depending on where ATC vectors the aircraft before clearing them to FLOKA and it could increase communication between ATC and pilots who will be asking questions about the altitude restriction, which ties up the radios. It also adds pilot workload once airborne when ATC issues a higher altitude by stating "CLIMB AND MAINTAIN (altitude)". The use of "CLIMB AND MAINTAIN (altitude) deletes any published altitude restrictions, therefore pilots will be heads down deleting the restriction from the FMC.

AFS has approved other procedures within the NAS provided an evaluation has been completed. In this case, the evaluation has been accomplished and is contained under number 4 below.

4. EQUIVALENT LEVEL OF SAFETY PROVIDED:

With a standard climb gradient of 200 ft/nm all surfaces are clear to IF (FLOKA) which is 10.00 nm from the closest DER. The departure route description for all runways will provide instruction for the aircraft to conduct an uninterrupted climb to an altitude "AS ASSIGNED BY ATC" which is above the MVA from the airport to the IF.

ATC will ensure aircraft departing will cross the IF at or above 3100 ft MSL. An OCS with a starting elevation of 2000 ft (3000 MVA-1000 ROC) was evaluated for the route starting at FLOKA and the surface was clear.

5. ALTERNATIVE ACTIONS DEEMED NOT FEASIBLE:

Modifying all runway SIDs to replace the radar vectors segment with RNAV OTG would be incompatible with procedure efficiency in a constrained airspace and cause environmental issues and delays.

6. COORDINATION WITH USER ORGANIZATIONS (SPECIFY):

Central Service Area PBN FAA and NATCA Leads ZOB ARTCC D21 TRACON Detroit Metro Tower

7. SUBMITTED BY:

DATE	OFFICE IDENTIFICATION	TITLE		
1/26/2024	AJV-A432	MGR		

Digitally signed by **CASIMIR L TABAKA** Jan 26, 2024

SIGNATURE

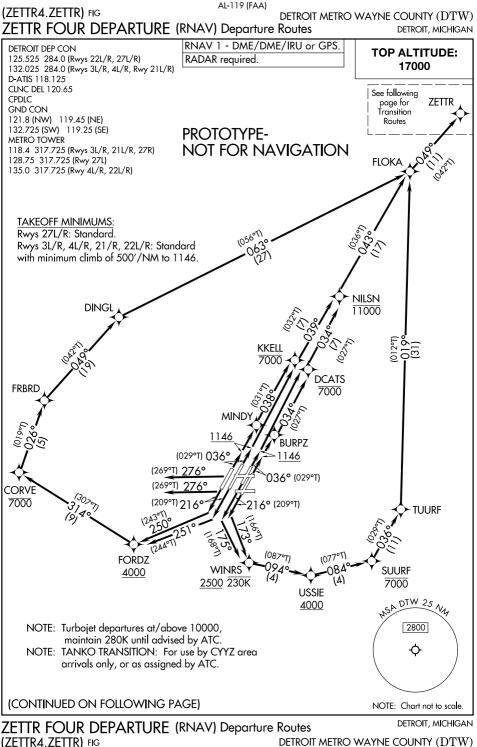
FLIGHT STANDARDS USE ONLY CONTROL NO.

8. FLIGHT STANDARDS ACTIONS:

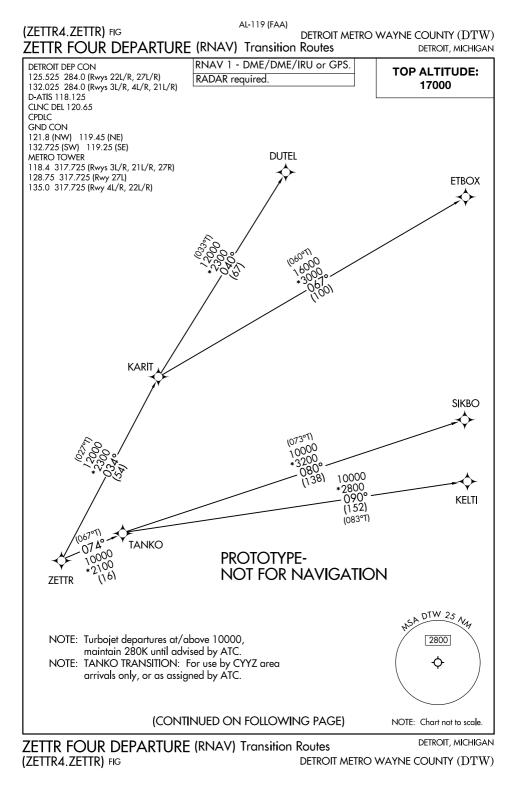
□ APPROVED □ DISAPPROVED □ NOT REQUIRED

COMMENTS:

DATE ROUTING SYMBOL SIGNATURE



DETROIT METRO WAYNE COUNTY (DTW)



(ZETTR4.ZETTR) FIG ZETTR FOUR DEPARTURE (RNAV)

V

DEPARTURE ROUTE DESCRIPTION

SEE ADDITIONAL REQUIREMENTS ON AAUP

<u>TAKEOFF RUNWAY 3L:</u> Climb on heading 036° to 1146, then direct to cross DCATS at or below 7000, then on track 034° to cross NILSN at or below 11000, then on track 043° to FLOKA, thence....

TAKEOFF RUNWAY 3R: Climb on heading 036° to 1146, then direct BURPZ, then on track 034° to cross DCATS at or below 7000, then on track 034° to cross NILSN at or below 11000, then on track 043° to FLOKA, thence....

TAKEOFF RUNWAY 4L: Climb on heading 036° to 1146, then direct MINDY, then on track 038° to cross KKELL at or below 7000, then on track 039° to cross NILSN at or below 11000, then on track 043° to FLOKA, thence....

TAKEOFF RUNWAY 4R: Climb on heading 036° to 1146, then direct to cross KKELL at or below 7000, then on track 039° to cross NILSN at or below 11000, then on track 043° to FLOKA, thence....

TAKEOFF RUNWAY 21L: Climb on heading 216° to intercept course 173° to cross WINRS at or above 2500 and at or below 230K, then on track 094° to cross USSIE at or above 4000, then on track 084° to cross SUURF at or below 7000, then on track 036° to TUURF, then on track 019° to FLOKA, thence....

TAKEOFF RUNWAY 21R: Climb on heading 216° to intercept course 175° to cross WINRS, at or above 2500 and at or below 230K, then on track 094° to cross USSIE at or above 4000, then on track 084° to cross SUURF at or below 7000, then on track 036° to TUURF, then on track 019° to FLOKA, thence....

TAKEOFF RUNWAY 22L: Climb on heading 216° to intercept course 251° to cross FORDZ at or above 4000, then on track 314° to cross CORVE at or below 7000, then on track 026° to FRBRD, then on track 049° to DINGL, then on track 063° to FLOKA, thence....

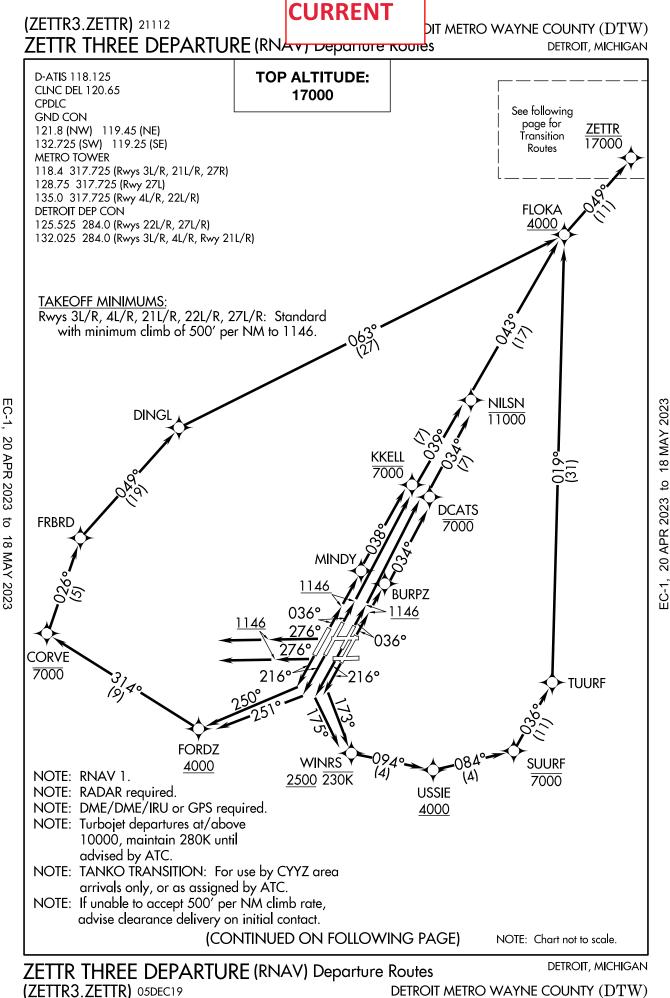
TAKEOFF RUNWAY 22R: Climb on heading 216° to intercept course 250° to cross FORDZ at or above 4000, then on track 314° to cross CORVE at or below 7000, then on track 026° to FRBRD, then on track 049° to DINGL, then on track 063° to FLOKA, thence....

TAKEOFF RUNWAYS 27L/R: Climb on heading 276° or as assigned by ATC, for RADAR vectors to FLOKA, thence....

....on track 049° to ZETTR, then on (transition). Maintain 17000, expect filed altitude 10 minutes after departure.

DUTEL TRANSITION (ZETTR4.DUTEL): ETBOX TRANSITION (ZETTR4.ETBOX): KELTI TRANSITION (ZETTR4.KELTI): SIKBO TRANSITION (ZETTR4.SIKBO): TANKO TRANSITION (ZETTR4.TANKO):

PROTOTYPE-NOT FOR NAVIGATION



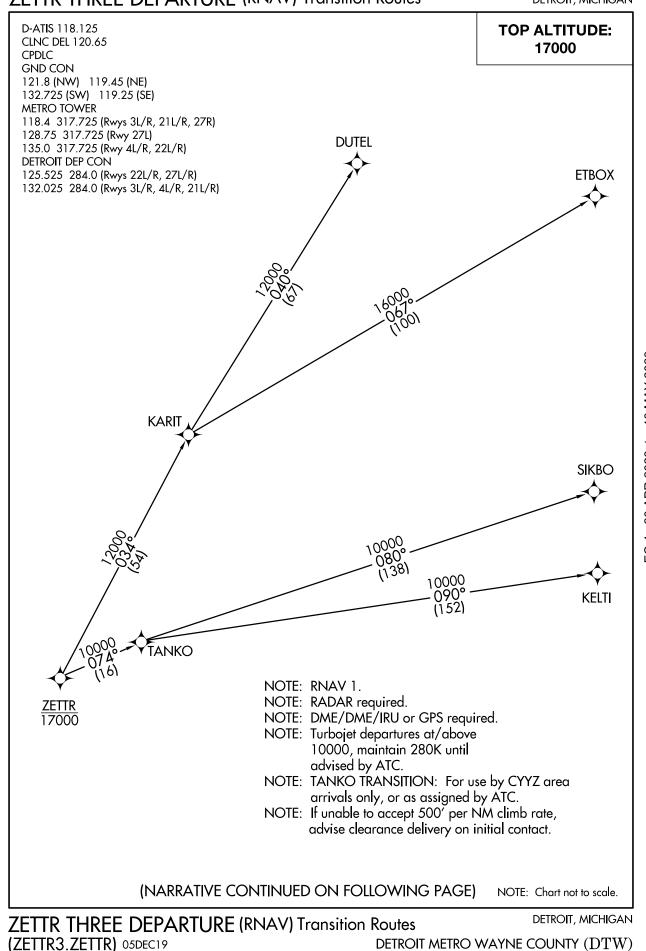
20 APR 2023 ರ್ 18 MAY 2023

DETROIT METRO WAYNE COUNTY (DTW)

CURRENT

(ZETTR3.ZETTR) 21112 ETROIT METRO WAYNE COUNTY (DTW)ZETTR THREE DEPARTURE (RNAV) Transition Routes

DETROIT, MICHIGAN



EC-1, 20 APR 2023 ರ್ 18 MAY 2023

EC-1, 20 APR 2023 to 18 MAY 2023

(ZETTR3.ZETTR) 21112 ZETTR THREE DEPARTURE (KINAV)

ROIT METRO WAYNE COUNTY (DTW) DETROIT, MICHIGAN

V

EC-1, 20 APR 2023 to

18 MAY 2023

DEPARTURE ROUTE DESCRIPTION

NOTE: See additional requirements in RNAV departure AAUP.

<u>TAKEOFF RUNWAY 3L:</u> Climb on heading 036° to 1146, then direct to cross DCATS at or below 7000, then on track 034° to cross NILSN at or below 11000, then on track 043° to cross FLOKA at or above 4000, thence....

<u>TAKEOFF RUNWAY 3R</u>: Climb on heading 036° to 1146, then direct BURPZ, then on track 034° to cross DCATS at or below 7000, then on track 034° to cross NILSN at or below 11000, then on track 043° to cross FLOKA at or above 4000, thence....

<u>TAKEOFF RUNWAY 4L</u>: Climb on heading 036° to 1146, then direct MINDY, then on track 038° to cross KKELL at or below 7000, then on track 039° to cross NILSN at or below 11000, then on track 043° to cross FLOKA at or above 4000, thence....

<u>TAKEOFF RUNWAY 4R</u>: Climb on heading 036° to 1146, then direct to cross KKELL at or below 7000, then on track 039° to cross NILSN at or below 11000, then on track 043° to cross FLOKA at or above 4000, thence....

<u>TAKEOFF RUNWAY 21L</u>: Climb on heading 216° to intercept course 173° to cross WINRS at or above 2500 and at or below 230K, then on track 094° to cross USSIE at or above 4000, then on track 084° to cross SUURF at or below 7000, then on track 036° to TUURF, then on track 019° to cross FLOKA at or above 4000, thence....

TAKEOFF RUNWAY 21R: Climb on heading 216° to intercept course 175° to cross WINRS, at or above 2500 and at or below 230K, then on track 094° to cross USSIE at or above 4000, then on track 084° to cross SUURF at or below 7000, then on track 036° to TUURF, then on track 019° to cross FLOKA at or above 4000, thence....

<u>TAKEOFF RUNWAY 22L</u>: Climb on heading 216° to intercept course 251° to cross FORDZ at or above 4000, then on track 314° to cross CORVE at or below 7000, then on track 026° to FRBRD, then on track 049° to DINGL, then on track 063° to cross FLOKA at or above 4000, thence....

<u>TAKEOFF RUNWAY 22R</u>: Climb on heading 216° to intercept course 250° to cross FORDZ at or above 4000, then on track 314° to cross CORVE at or below 7000, then on track 026° to FRBRD, then on track 049° to DINGL, then on track 063° to cross FLOKA at or above 4000, thence....

TAKEOFF RUNWAYS 27L/R: Climb on heading 276° to 1146, then on heading 276° or as assigned for RADAR vectors to cross FLOKA at or above 4000, thence....

....on track 049° to cross ZETTR at or below 17000, then on (transition). Maintain 17000 or as assigned by ATC, expect filed altitude 10 minutes after departure.

DUTEL TRANSITION (ZETTR3.DUTEL): ETBOX TRANSITION (ZETTR3.ETBOX): KELTI TRANSITION (ZETTR3.KELTI): SIKBO TRANSITION (ZETTR3.SIKBO): TANKO TRANSITION (ZETTR3.TANKO): CURRENT

ATTENTION ALL USERS PAGE (AAUP)

SIMULTANEOUS RNAV DEPARTURES

The purpose of this briefing is to provide guidance, safe operating practices, and phraseology that will help ensure heightened awareness when conducting parallel RNAV departures at the Detroit Metro Wayne County Airport (DTW). Where applicable, pilots should comply with established company procedures for RNAV operations.

1. PREFLIGHT: Expect clearance for RNAV Standard Instrument Departure (SID), if capable of terminal RNAV procedures. If unable to accept the assigned RNAV SID, advise Clearance Delivery on initial contact. Upon assignment of an RNAV SID, crosscheck the charted RNAV SID with the aircraft navigation system against the ATC clearance. Consider the following cross items:

- Ensure correct departure runway is loaded
- Ensure all transitions are loaded correctly
- Ensure sequence of waypoints match the appropriate charts
- Use the LEGS page to verify routing (for navigation systems with ROUTE and LEGS pages)
- Ensure altitude set in the altitude window matches the TOP ALTITUDE of the SID (unless amended by ATC)
- Do not modify or manually construct RNAV procedures
- Advise ATC prior to takeoff if unable verify correct loading or if unable to comply with the SID

2. BEFORE TAKEOFF: Ensure the departure runway assigned on taxi is depicted by the navigation system.

- Verify all modifications, including runway changes, in the navigation system with the RNAV SID
- Verify aircraft symbol relative to the runway symbol, lateral track, and depicted route agree with the ATC clearance (electronic navigation map displays)

3. LINE UP/TAKEOFF: Expect a takeoff clearance that will include "RNAV to" the first waypoint on the SID, or a heading. If issued a heading, do not delete the SID from the navigation system.

- Clearance: "Delta 123, RNAV to SAAMS, Runway 22L, Cleared for Takeoff"
- Response: "Delta 123, RNAV to SAAMS, Runway 22L, Cleared for Takeoff"
- Verify the correct runway and SID are loaded and the correct lateral navigation mode is available and ready for use after takeoff
- If the takeoff clearance does not match the planned/loaded procedure, request an initial heading from tower or refuse the takeoff clearance until the discrepancy is resolved.

4. AFTER TAKEOFF: Unless issued a heading, engage lateral navigation flight guidance as soon as practical and fly the departure precisely.

- Parallel RNAV departures must not encroach on the airspace between parallel runway centerlines without specific ATC clearance
- When possible, track the runway centerline until reaching the departure end of runway
- Strict compliance with the lateral and vertical tracks and charted speed restrictions is imperative
- Once established on the procedure, maintain route centerline, as depicted by onboard lateral navigation indicators and/or flight guidance
- Manually intervene if necessary, to stay on track to avoid transgressing in the direction of a parallel runway, track, or aircraft
- If unable to comply with the SID profile, either laterally or vertically, immediately notify ATC

(CONTINUED ON FOLLOWING PAGE)

ЕС-1,

05 OCT 2023 to 02 NOV 2023

CURRENT

ATTENTION ALL USERS PAGE (AAUP)

(CONTINUED FROM PREVIOUS PAGE)

5. **SPECIFIC INFORMATION:** Runway assignments will be issued on initial contact with Ground Control and will be based on traffic conditions, runway closures, and other operational requirements.

For planning purposes, pilots can anticipate a runway assignment based upon the information below.

Runway Assignment for Dual Departure Operations

Departing Runways 22L/R, 21L/R SNDRS, CCOBB, KAYLN, MIGGY, TRMML, ZETTR - Expect Runway 22L HHOWE, PAVYL, LIDDS, BARII, CLVIN - Expect Runway 21R

<u>Departing Runways 4L/R, 3L/R</u> SNDRS, CCOBB, KAYLN, MIGGY, TRMML, ZETTR - Expect Runway 04R HHOWE, PAVYL, LIDDS, BARII, CLVIN - Expect Runway 03L

Departing Runways 27L/R (not depicted below) KAYLN, MIGGY, TRMML, ZETTR, HHOWE - Expect Runway 27R CCOBB, SNDRS, BARII, CLVIN, LIDDS, PAVYL - Expect Runway 27L

