

Flight Procedures Cover Page	Task Action: FLIGHT CHECK	Task Type: SID	Estimated Chart Date: 06/12/2025	APWS Task ID: 26F05D70041343E5855F0B51644230C6	APWS Project ID: 3B9EF53F2C5245AE87CF6CE2D62BFE35
Procedure: MCO FATHE FOUR (RNAV) SID		Enroute: YES	Specialist: Bruno, John		Agreement Number:
Airport ID: KMCO			Airport City: ORLANDO		State: FL
Facility ID:	Facility Type:	Flight Inspection Remark Type: New FC Slot			
<div>Procedure Comments: Contact Rob Hamilton 405-954-4608 WAIVER ON FILE TO NOT CHART IF ALTITUDE AT THE IF FOR RADAR VECTORS (RV). WAIVER ON FILE TO PUBLISH ATC CLIMB GRADIENTS. APPROVAL LETTER ON FILE FOR CLIMB GRADIENTS IN EXCESS OF 500 FEET PER NM. 04/02/25: THIS IS A UPDATED COPY OF THE FORM DEVELOPED ON ON 02/19/25 -EQUIPMENT REQUIREMENT NOTES - REMOVED NOTE "RADAR REQUIRED FOR NON-GPS EQUIPPED AIRCRAFT".</div>					



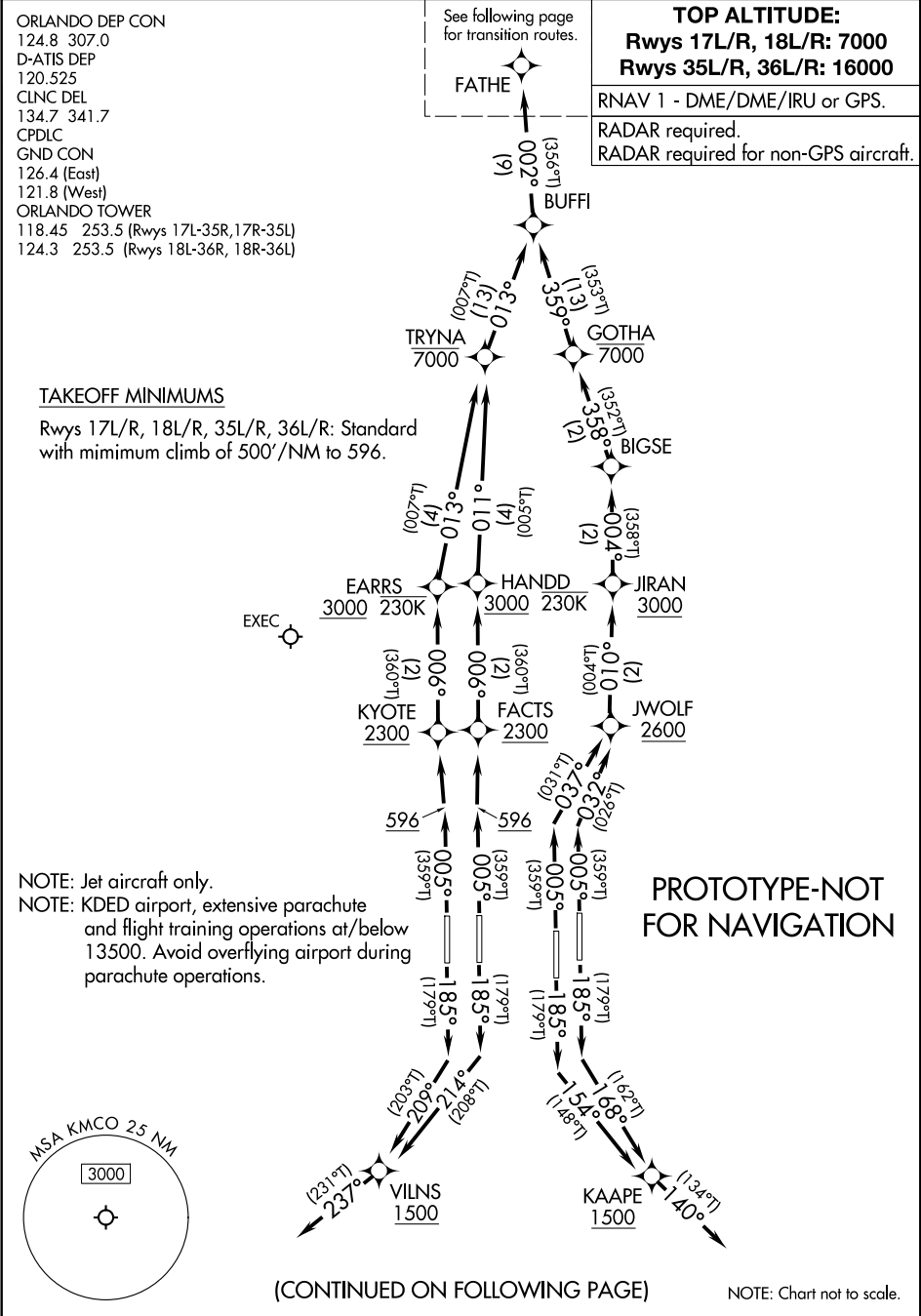
FIPC DME/DME FORM						
PROCEDURE: MCO FATHE FOUR (RNAV) SID			AIRPORT NAME: ORLANDO INTL		AIRPORT ID: KMCO	SPECIAL CONTROL NO: AG-02-284-25
FAC ID: FATHE4		CITY: ORLANDO			ST: FL	ORIG CHART DATE: 06/12/2025
DFL TYPE: PROC/D	THIRD PARTY: <input type="checkbox"/> YES	EST. TIME ON SITE: 1.0	REIMB. NUMBER:	PTS TASK ID: 26F05D70041343E5855F0B51644230C6		
PREFLIGHT NOTES						
REVIEWER: ryan caramanica					DATE: 03/15/2025	
COMMENTS:					CHECK ONE:	
					<input type="checkbox"/> FLT CK REQ <input checked="" type="checkbox"/> NFCR <input type="checkbox"/> REJECT	
					<div style="display: flex; justify-content: space-between;"> YES NO </div>	
					CPV COMPLETE?	
						X
PROCEDURE RESULTS						
INSPECTION DATE: 03/15/2025	CREW #: VN532	N #:	INSTRUMENT PROCEDURE STATUS: <input checked="" type="checkbox"/> SAT <input type="checkbox"/> SAT W/CHANGES <input type="checkbox"/> UNSAT		ARINC CODING: <input checked="" type="checkbox"/> SAT <input type="checkbox"/> SAT/GOLD <input type="checkbox"/> UNSAT	
FLIGHT INSPECTOR SIGNATURE: ryan caramanica @ 03/15/2025 10:59			PRINTED NAME: CARAMANICA, RYAN DANIEL			NOTAM INITIATED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
FLIGHT INSPECTOR REMARKS: Ground evaluation of amended procedure, Special Number; AG-02-284-25, ORLANDO INTL (MCO), Orlando, FL, FATHE FOUR DEPARTURE (RNAV) SID, Amdt 4, Sat. Changes to climb gradient, and altitude restrictions were ATC requested for airspace and traffic flow, no obstacle changes. Verified adjusted RNAV points in JMCO 2502C database. No changes require an airborne evaluation. Procedure as amended is Satisfactory.						
DME/DME STATUS: <input checked="" type="checkbox"/> SAT <input type="checkbox"/> UNSAT	SPECIALIST SIGNATURE: steven s-ctr rager @ 03/19/2025 11:11			PRINTED NAME: Steven Rager		
SPECIALIST REMARKS: No Post Flight DME-DME analysis necessary. No change to procedure required airborne eval.						
IN-FLIGHT OBSTACLE REPORT						
OBSTRUCTION ID #:	COORDINATES OR LOCATION:	GNSS ALTITUDE (MSL):	BAROMETRIC ALTITUDE (MSL):	HEIGHT ABOVE GROUND LEVEL:		

FIPC DME/DME FORM						
PROCEDURE: MCO FATHE FOUR (RNAV) SID			AIRPORT NAME: ORLANDO INTL		AIRPORT ID: KMCO	SPECIAL CONTROL NO: AG-02-284-25
FAC ID: FATHE4		CITY: ORLANDO			ST: FL	ORIG CHART DATE: 06/12/2025
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REVIEWER: ryan caramanica					DATE: 03/15/2025	
COMMENTS:					CHECK ONE:	
					<input type="checkbox"/> FLT CK REQ <input checked="" type="checkbox"/> NFCR <input type="checkbox"/> REJECT	
						YES
					CPV COMPLETE?	X
PROCEDURE RESULTS						
INSPECTION DATE: 03/15/2025	CREW #: VN532	N #:	INSTRUMENT PROCEDURE STATUS: <input checked="" type="checkbox"/> SAT <input type="checkbox"/> SAT W/CHANGES <input type="checkbox"/> UNSAT		ARINC CODING: <input checked="" type="checkbox"/> SAT <input type="checkbox"/> SAT/GOLD <input type="checkbox"/> UNSAT	
FLIGHT INSPECTOR SIGNATURE: ryan caramanica @ 03/15/2025 10:59			PRINTED NAME: CARAMANICA, RYAN DANIEL			NOTAM INITIATED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
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SPECIALIST REMARKS:						
IN-FLIGHT OBSTACLE REPORT						
OBSTRUCTION ID #:	COORDINATES OR LOCATION:	GNSS ALTITUDE (MSL):	BAROMETRIC ALTITUDE (MSL):	HEIGHT ABOVE GROUND LEVEL:		

(FATHE4.FATHE) FIG
FATHE FOUR DEPARTURE (RNAV) Departure Routes

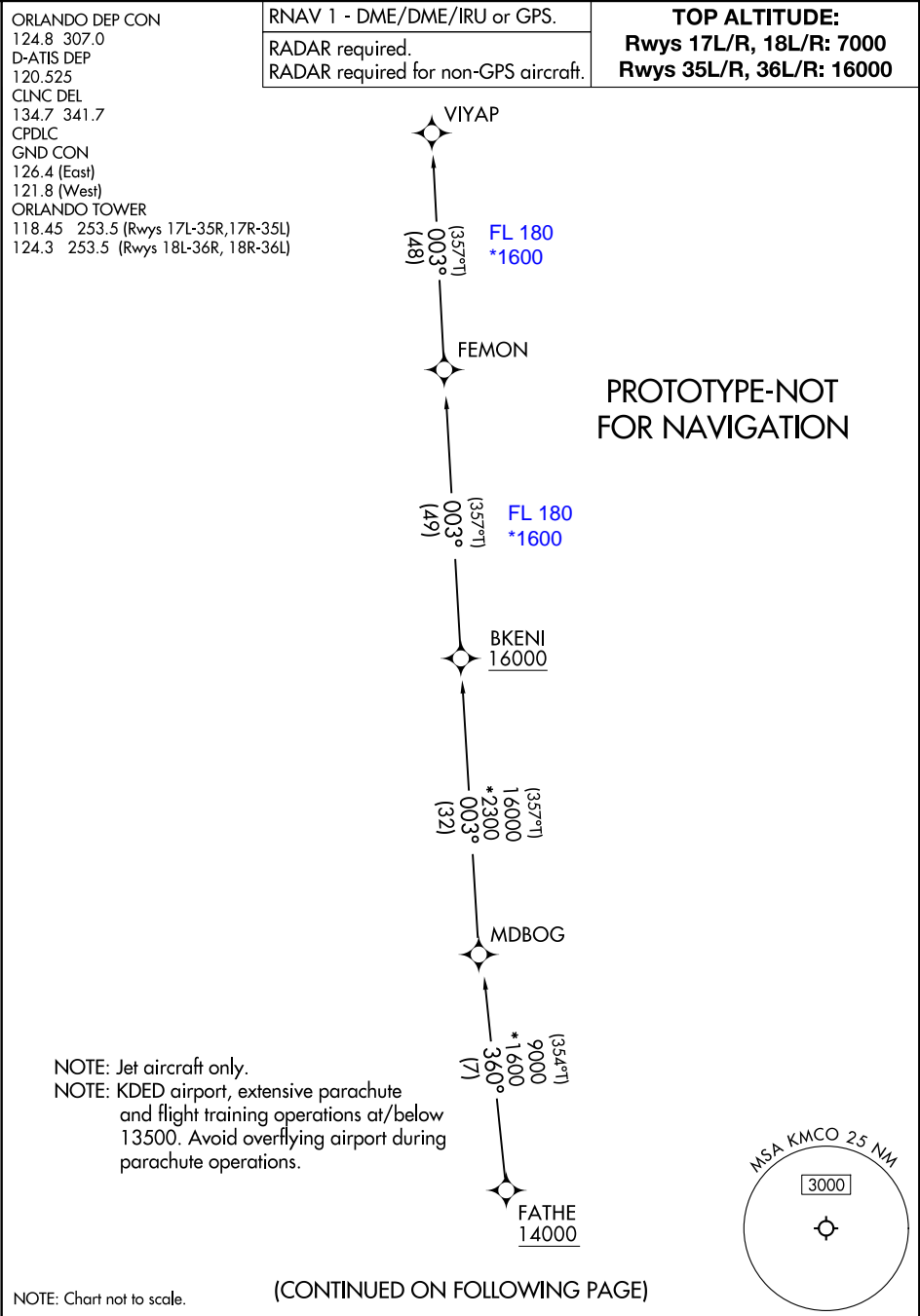
AL-571 (FAA)

ORLANDO INTL (MCO)
ORLANDO, FLORIDA



FATHE FOUR DEPARTURE (RNAV) Departure Routes
(FATHE4.FATHE) FIG

ORLANDO, FLORIDA
ORLANDO INTL (MCO)





DEPARTURE ROUTE DESCRIPTION

SEE ADDITIONAL REQUIREMENTS ON AAUP

TAKEOFF RUNWAY 17L: Climb on heading 185° to intercept course 168° to cross KAAPE at or above 1500, then on track 140°, for vectors to BUFFI, thence

TAKEOFF RUNWAY 17R: Climb on heading 185° to intercept course 154° to cross KAAPE at or above 1500, then on track 140°, for vectors to BUFFI, thence

TAKEOFF RUNWAY 18L: Climb on heading 185° to intercept course 214° to cross VILNS at or above 1500, then on track 237°, for vectors to BUFFI, thence

TAKEOFF RUNWAY 18R: Climb on heading 185° to intercept course 209° to cross VILNS at or above 1500, then on track 237°, for vectors to BUFFI, thence

TAKEOFF RUNWAY 35L: Climb on heading 005° to intercept course 037° to cross JWOLF at or above 2600, then on track 010° to cross JIRAN at or above 3000, then on track 004° to BIGSE, then on track 358° to cross GOTH A at or below 7000, then on track 359° to BUFFI, thence

TAKEOFF RUNWAY 35R: Climb on heading 005° to intercept course 032° to cross JWOLF at or above 2600, then on track 010° to cross JIRAN at or above 3000, then on track 004° to BIGSE, then on track 358° to cross GOTH A at or below 7000, then on track 359° to BUFFI, thence

TAKEOFF RUNWAY 36L: Climb on heading 005° to 596, then direct KYOTE at or above 2300, then on track 006° to cross EARRS at or above 3000 and at or below 230K, then on track 013° to cross TRYNA at or below 7000, then on track 013° to BUFFI, thence

TAKEOFF RUNWAY 36R: Climb on heading 005° to 596, then direct FACTS at or above 2300, then on track 006° to cross HANDD at or above 3000 and at or below 230K, then on track 011° to cross TRYNA at or below 7000, then on track 013° to BUFFI, thence

. . . . then on track 002° to cross FATHE at or above 14000, then on transition.
 RUNWAYS 17L/R, 18L/R maintain 7000, RUNWAYS 35L/R, 36L/R maintain 16000, expect filed altitude 10 minutes after departure.

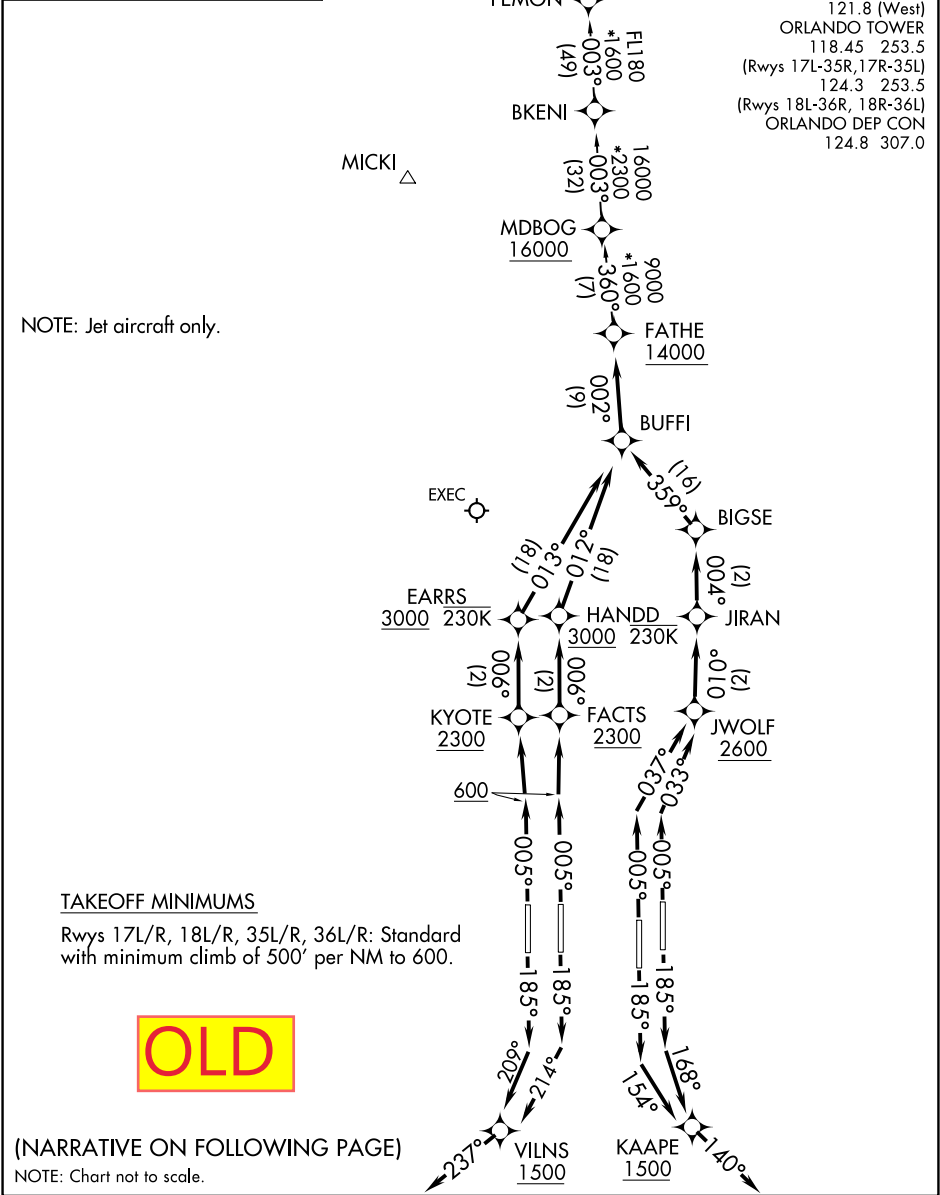
ALL AIRCRAFT: ATC climb gradient: if unable to accept climb rate advise ATC prior to taxi. RUNWAY 35R: 548'/NM to 2600, RUNWAY 36L: 599'/NM to 2300, RUNWAY 36R: 589'/NM to 2300.

VIYAP TRANSITION (FATHE4.VIYAP)

PROTOTYPE-NOT FOR NAVIGATION

TOP ALTITUDE:
Rwys 17L/R, 18L/R: 7000
Rwys 35L/R, 36L/R: 16000
RNAV 1 - DME/DME/IRU or GPS.
RADAR required.

D-ATIS DEP
120.525
CLNC DEL
134.7 341.7
CPDLC
GND CON
126.4 (East)
121.8 (West)
ORLANDO TOWER
118.45 253.5
(Rwys 17L-35R, 17R-35L)
124.3 253.5
(Rwys 18L-36R, 18R-36L)
ORLANDO DEP CON
124.8 307.0



SE-3, 28 NOV 2024 to 26 DEC 2024

SE-3, 28 NOV 2024 to 26 DEC 2024



OLD

DEPARTURE ROUTE DESCRIPTION
SEE ADDITIONAL REQUIREMENTS ON AAUP

TAKEOFF RUNWAY 17L: Climb on heading 185° to intercept course 168° to cross KAAPE at or above 1500, then on track 140°, for vectors to BUFFI, thence

TAKEOFF RUNWAY 17R: Climb on heading 185° to intercept course 154° to cross KAAPE at or above 1500, then on track 140°, for vectors to BUFFI, thence

TAKEOFF RUNWAY 18L: Climb on heading 185° to intercept course 214° to cross VILNS at or above 1500, then on track 237°, for vectors to BUFFI, thence

TAKEOFF RUNWAY 18R: Climb on heading 185° to intercept course 209° to cross VILNS at or above 1500, then on track 237°, for vectors to BUFFI, thence

TAKEOFF RUNWAY 35L: Climb on heading 005° to intercept course 037° to cross JWOLF at or above 2600, then on track 010° to JIRAN, then on track 004° to BIGSE, then on track 359° to BUFFI, thence

TAKEOFF RUNWAY 35R: Climb on heading 005° to intercept course 033° to cross JWOLF at or above 2600, then on track 010° to JIRAN at or above 3000, then on track 004° to BIGSE, then on track 359° to BUFFI, thence

TAKEOFF RUNWAY 36L: Climb on heading 005° to 600, then direct KYOTE at or above 2300, then on track 006° to cross EARRS at or above 3000 and at or below 230K, then on track 013° to BUFFI, thence

TAKEOFF RUNWAY 36R: Climb on heading 005° to 600, then direct FACTS at or above 2300, then on track 006° to cross HANDD at or above 3000 and at or below 230K, then on track 012° to BUFFI, thence

. . . . on track 002° to cross FATHE at or above 14000, then on assigned transition, RUNWAY 17L/17R, 18L/18R maintain 7000, RUNWAY 35L/35R, 36L/36R maintain 16000, expect filed altitude 10 minutes after departure.

ALL AIRCRAFT: ATC climb gradients: If unable to accept climb rates advise ATC prior to taxi. RUNWAY 35R: 566 FT/NM to 2300, RUNWAY 36L: 637 FT/NM to 2300, RUNWAY 36R: 621 FT/NM to 2300.

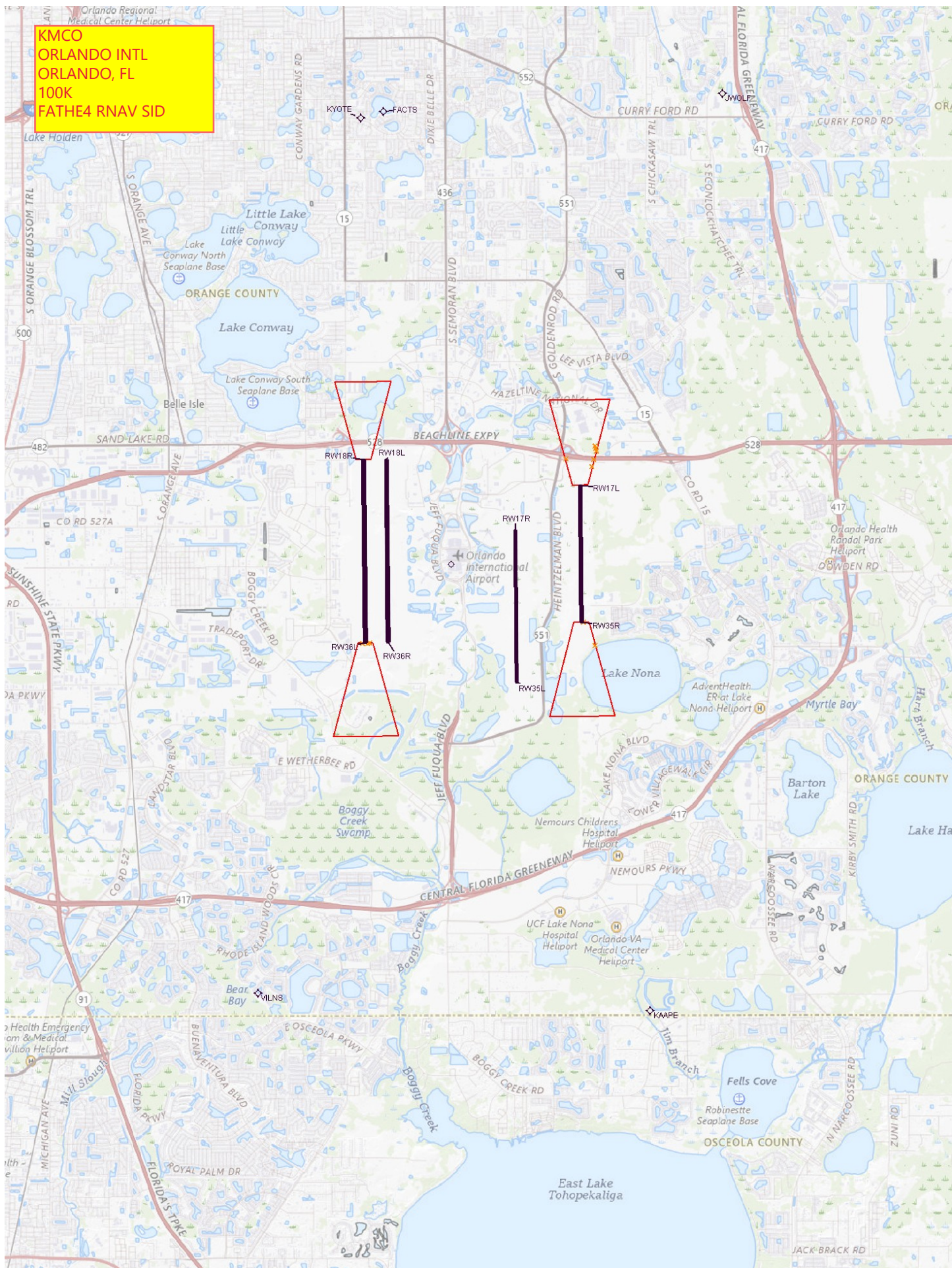
VIYAP TRANSITION (FATHE3.VIYAP)

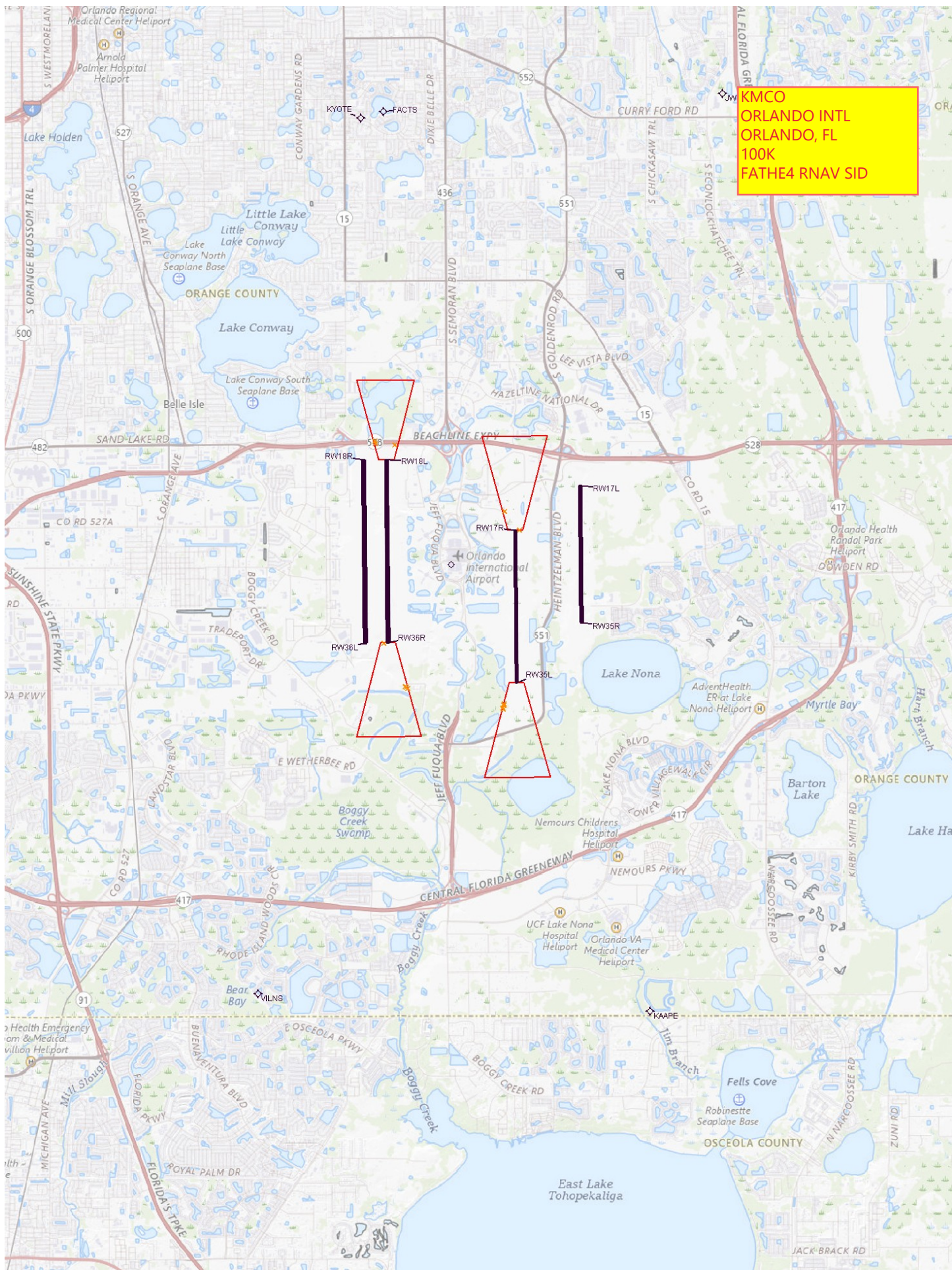
OLD

SE-3, 28 NOV 2024 to 26 DEC 2024

SE-3, 28 NOV 2024 to 26 DEC 2024

KMCO
ORLANDO INTL
ORLANDO, FL
100K
FATHE4 RNAV SID





KMCO
ORLANDO INTL
ORLANDO, FL
FATHE4 RNAV SID
RWY 17L/35R
500K 1 OF 6

CAUTION: High volume of flight training surface to 4000' MSL

EXAMPLE

$\frac{T}{30}$ --- Ceiling
--- Floor

AT & BELOW 3500

See NOTAMs/Supplement
for Class D eff hrs

CTC ORLANDO APP WITHIN
20 NM ON 119.775 351.9
AT & BELOW 3500'

CAUTION: High volume rotary aircraft training surface to 2000' MSL. Advisory frequency 121.95.

115.85 Ch 105 MELB



KMCO
ORLANDO INTL
ORLANDO, FL
FATHE4 RNAV SID
RWY 17R/35L
500K 2 OF 6

CTORLND APP WITHIN
20 NM ON 119.775 351.9
AT & BELOW 3500'

CAUTION: High volume
of flight training
surface to 4000' MSL

CAUTION: High volume rotary
aircraft training surface to 2000'
MSL. Advisory frequency 121.95.

DISNEY WORLD THEME PARK
See Panel for requirements

See NOTAMS/Supplement
for Class D eff hrs

See NOTAMS/Supplement
for Class D eff hrs

See NOTAMS/Supplement
for Class C eff hrs

Vector SID Controller TOWER (1740)
12-002157

FATHE4 TO MBOG TOWER (572)
12-000838

CTORLND APP WITHIN
20 NM ON 119.775 351.9
AT & BELOW 3500'

See NOTAMS/Supplement
for Class D eff hrs

See NOTAMS/Supplement
for Class D/E (sic) eff hrs



FATHE to MDOBOW TOWER (572)
12-000838

Vector SID Controller TOWER (1740)
12-002157

CTC ORLANDO APP WITHIN
20 NM ON 119.775 351.9
AT & BELOW 3500'

CTC ORLANDO APP WITHIN
20 NM ON 119.775 351.9
AT & BELOW 3500'

KMCO
ORLANDO INTL
ORLANDO, FL
FATHE4 RNAV SID
RWY 18L/36R
500K 3 OF 6



KMCO
ORLANDO INTL
ORLANDO, FL
FATHE4 RNAV SID
RWY 18R/36L
500K 4 OF 6

CTC ORLANDO APP WITHIN
20 NM ON 119.775 351.9
AT & BELOW 3500'

FATHE to MDOB TOWER (572)
12-000838

Vector SID Controller TOWER (1740)
12-002157

DISNEY WORLD THEME PARK
See Panel for requirements

CAUTION: High volume
of flight training
surface to 4000' MSL

CAUTION: High volume rotary
aircraft training surface to 2000'
MSL. Advisory frequency 121.95

EXAMP
T --- Ceiling
30 --- Floor

See NOTAMs/Supplement
for Class D eff hrs

See NOTAMs/Supplement
for Class C eff hrs

See NOTAMs/Supplement
for Class D eff hrs

See NOTAMs/Supplement
for Class D eff hrs

Class D excluded when
R-2934 is active

KMCO
ORLANDO INTL
ORLANDO, FL
FATHE4 RNAV SID
500K 5 OF 6

CTC JACKSONVILLE APP WITHIN
20 NM ON 127.3 292.15

JACKSONVILLE INSET
See inset chart for additional detail

MAYPORT HIGH MOA
MAYPORT LOW MOA

See NOTAMs/Supplement
for Class D/E (sfc) eff hrs

MAYPORT NS (ADM DAVID
L MCDONALD FLD) (NRB)
CT - 118.75 * ATIS 236.775
15 °L 80

CAUTION: HIGH DENSITY
MILITARY TRAFFIC
JACKSONVILLE EXEC
AT CRAIG (CRG)
CT - 132.1 * ATIS 125.4
41 °L 40 122.95

VORTAC
CRAIG
114.5 Ch 92 CRG

GAINESVILLE

CTC JACKSONVILLE APP WITHIN
20 NM ON 132.775 284.6 ABOVE 5000';
124.9 308.4 5000' & BELOW

SPECIAL MILITARY ACTIVITY
FOR IR32, IR33 CTC GAINESVILLE RADIO
ON 122.3 FOR ACTIVITY STATUS

ST AUGUSTINE
109.4 Ch 31 SGJ

See NOTAMs/Supplement
for Class D/E (sfc) eff hrs

NORTHEAST FLORIDA RGNL (SGJ)
CT - 127.625 * ATIS 119.625
10 °L 80
00 °L 120
122.95

See NOTAMs/Supplement
for Class D/E (sfc) eff hrs

See NOTAMs/Supplement
for Class D/E (sfc) eff hrs

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for Class D/E (sfc) eff hrs

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for Class D/E (sfc) eff hrs

See NOTAMs/Supplement
for Class D/E (sfc) eff hrs

See NOTAMs/Supplement
for Class D/E (sfc) eff hrs

CTC DAYTONA BEACH APP
WITHIN 20 NM ON 125.8 269.075
AT & BELOW 3500'

DAYTONA BEACH CLASS C

See NOTAMs/Supplement
for Class D/E (sfc) eff hrs

See NOTAMs/Supplement
for Class D/E (sfc) eff hrs

See NOTAMs/Supplement
for Class D/E (sfc) eff hrs

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See NOTAMs/Supplement
for Class D/E (sfc) eff hrs

See NOTAMs/Supplement
for Class D/E (sfc) eff hrs

CTC DAYTONA BEACH APP WITHIN
20 NM ON 125.35 322.3
AT & BELOW 3500'

See NOTAMs/Supplement

KMCO
ORLANDO INTL
ORLANDO, FL
FATHE4 RNAV SID
500K 6 OF 6

FEMON to VIYAP TOWER (510)
13-003302

CTC JACKSONVILLE APP WITHIN
20 NM ON 127.0 292.15

JACKSONVILLE INSET
See inset chart for additional detail

MAYPORT HIGH MOA
MAYPORT LOW MOA

See NOTAMs/Supplement
for Class D/E (sfc) eff hrs

MAYPORT NS (ADM DAVID
L MCDONALD FLD) (NRB)

CAUTION: HIGH DENSITY
MILITARY TRAFFIC

JACKSONVILLE EXEC
..... AT CRAIG (CRG)
CT - 132.1 * C ATIS 125.4
41 *L 40 122.95

122.2 VORTAC
CRAIG
114.5 Ch 92 CRG
GAINESVILLE

CTC JACKSONVILLE APP WITHIN
20 NM ON 132.775 284.6 ABOVE 5000';
124.9 308.4 5000' & BELOW

SPECIAL MILITARY ACTIVITY
FOR IR32, IR33 CTC GAINESVILLE RAD
ON 122.3 FOR ACTIVITY STATUS

VOR-DME
ST AUGUSTINE
0.4 Ch 31 SGJ

KMCO
ORLANDO INTL
ORLANDO, FL
FATHE4 RNAV SID
MVA MAP 500K

1. FLIGHT PROCEDURE IDENTIFICATION:

Orlando, FL
Orlando International Airport (KMCO)
FATHE (RNAV) SID

2. WAIVER REQUIRED AND APPLICABLE STANDARD:

Waiver required to not chart IF altitude at the IF for radar vectors (RV). Per Order 8260.46K, Appendix E, Section 1, Para 2.m.(4) : "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 issued. With this procedure, it's unnecessary to add an altitude restriction at BUFFI as the aircraft will be issued an initial departure clearance containing "MAINTAIN 7000" for RWY 17L, 17R, 18L, 18R departures and will be receiving radar vectors to the waypoint BUFFI to join the procedure. When aircraft depart from the south runways, they will be climbing to 7000 and ATC must ensure they are At or Above the Minimum Vectoring Altitudes (MVA), therefore the aircraft are always operating in airspace at an altitude above any terrain or obstacles.

Adding an unnecessary altitude at BUFFI 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 BUFFI. Additionally, 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 an altitude higher than the IDF constraint 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 IDF 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 200FT/NM, all surfaces are clear to the IF (BUFFI) which is 25.24 NM from the closest DER. The departure route description for runways 17L, 17R, 18L, 18R will provide instruction for the aircraft to conduct an uninterrupted climb to 7000 which is above the MVA from the airport to the IF.

ATC will ensure aircraft departing runways 17L, 17R, 18L, 18R cross the IF At or Above 4000 feet MSL and within the confines of the Class B airspace. This requirement is included in the facility Standard Operating Procedure (SOP).

Additionally, ATC will ensure that all aircraft are assigned altitudes at or above the Minimum Vectoring Altitude (MVA). An OCS with a starting elevation of 1900FT (2900 MVA-1000 ROC) was evaluated for the route starting at BUFFI and the surface was clear.

5. ALTERNATIVE ACTIONS DEEMED NOT FEASIBLE:

Modifying the SID so as 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):

Eastern Service Area PBN Co-leads
Orlando International Tower
Orlando Central Florida TRACON (F11)
Jacksonville ARTCC (ZJX)
American Airlines, Southwest Airlines

7. SUBMITTED BY:

DATE **OFFICE IDENTIFICATION** **TITLE**

SIGNATURE

Digitally signed by

ROBERT G HAMILTON

Feb 27, 2025

8. AFS ACTIONS:

☐ **APPROVED** ☐ **DISAPPROVED** ☐ **NOT REQUIRED**

COMMENTS:

DATE **ROUTING SYMBOL** **SIGNATURE**

1. FLIGHT PROCEDURE IDENTIFICATION:

Orlando, FL

Orlando International Airport (KMCO)

FATHE (RNAV) SID

2. WAIVER REQUIRED AND APPLICABLE STANDARD:

Publish ATC Climb Gradients (CG). Per Order 8260.46K, Section 2-1-5, Para h.(3)(d) : "Do not chart CGs that may be needed to support airspace, navigation solution, environmental, or ATC operational limitations."

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

The ATC CG's of RWY 35R: 548 FT/NM, 36L: 599 FT/NM, and 36R: 589 FT/NM allow for the departures to be clear of arriving traffic into Orlando Executive Airport (KORL) RWY 25 ILS final approach course. This ensures a safe and efficient traffic flow for both airports. If aircraft cannot accept the climb gradient, ATC can provide an alternate option. Historically all aircraft have been able to make the crossing altitudes.

4. EQUIVALENT LEVEL OF SAFETY PROVIDED:

The procedure will have a Chart Note added stating: NOTE: ATC CLIMB GRADIENT: RWY 35R: 548 FT/NM to 2600, 36L: 599 FT/NM to 2300, 36R: 589 FT/NM to 2300, IF UNABLE TO ACCEPT CLIMB RATE ADVISE ATC PRIOR TO TAXI. This allows controllers time to coordinate with the controller in the adjacent airspace and/or assign a different departure.

5. ALTERNATIVE ACTIONS DEEMED NOT FEASIBLE:

Discarding the crossing altitude in favor of a standard climb was considered, but due to the high density of air traffic within the MCO Terminal (F11) airspace, the risk of required additional controller transmissions and disruption of traffic flow was regarded as being too great and introduced an unnecessary safety risk.

6. COORDINATION WITH USER ORGANIZATIONS (SPECIFY):

Eastern Service Area PBN Co-leads
Orlando International Tower
Orlando Central Florida TRACON (F11)
Jacksonville ARTCC (ZJX)
American Airlines, Southwest Airlines

7. SUBMITTED BY:

DATE OFFICE IDENTIFICATION TITLE

SIGNATURE

8. AFS ACTIONS:

☐ **APPROVED** ☐ **DISAPPROVED** ☐ **NOT REQUIRED**

Digitally signed by

ROBERT G HAMILTON

Feb 27, 2025

COMMENTS:

DATE ROUTING SYMBOL SIGNATURE



Federal Aviation Administration

Memorandum

Date: October 16, 2024

To: Christopher Hope, Manager, Flight Technologies and Procedures Division
THRU: Romana Wolf, Manager, Flight Procedures and Airspace Group

From: Bev Bordy, Manager, Instrument Flight Procedures Coordination Team, AJV-A45

Prepared by: Mark Thompson, Sr. ATC Specialist, NAVTAC CTR Support

Subject: Approval Request: Orlando INTL, Orlando, FL (KMCO)

FATHE (RNAV) SID, ATC CLIMB GRADIENT

The purpose of this memo is to request approval to publish the FATHE (RNAV) SID with climb gradients higher than 500 FT/NM as stated in FAA Order 8260.46K, Para 2-1-5.b. "The FPAG (or appropriate military authority) must approve DPs and DVAs requiring a CG in excess of 500 ft/NM (600 ft/NM for helicopters). See paragraph 2-1-5.h.(3) for additional information regarding establishing/publishing greater than standard CGs."

(1) "Requests for approval of CGs in excess of 500 ft/NM (600 ft/NM for helicopters) must include documentation showing the calculations used to derive the CG values."

The KMCO FATHE (RNAV) SID Departure was intended to overlay the initial climb of the Conventional SIDs to protect the arriving aircraft into Orlando Executive Airport (KORL) on the ILS RWY 25 IAP. The crossing restriction is required to ensure separation and optimal traffic flow in extremely congested airspace. The crossing restrictions result in ATC climb gradients of: RWY 35R; 548 FT/NM to 2600, 36L: 599 FT/NM to 2300, 36R: 589 FT/NM to 2300. This ensures a safe and efficient traffic flow for both airports. If the departure aircraft cannot accept the required ATC climb gradient, ATC can stop or delay aircraft executing the KORL ILS RWY 25 IAP until the departure traffic is airborne and clear of the final approach course. Historically all aircraft have been able to comply with all crossing altitudes.

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KMCO:RW35R:FATHE:VIYAP Evaluation Results Part 1/2

Leg Tp	End Pt	Turn Tp	Alt Restr	Alt Restr 2	Spd Restr	Min CG Calc Alt	Turn Ang	Leg Length	Min Seg Length
VI						294.12	26.28	1.02	1.02
CF	JWOLF	FLY_BY	+2600.00			1006.56	22.2	3.56	2.29
TF	JIRAN	FLY_BY	+3000.00			1424.83	5.72	2.09	1.63
TF	BIGSE	FLY_BY				1834.88	5.76	2.05	1.0
TF	GOTHA	FLY_BY	-7000.00			2306.44	1.05	2.36	1.0
TF	BUFFI	FLY_BY				4936.88	2.57	13.15	1.0

KMCO:RW35R:FATHE:VIYAP Evaluation Results Part 2/2

Leg Tp	End Pt	Turn Tp	DTA1	DTA1 Turn Rad	DTA1 Turn Alt	DTA1 Turn Spd	DTA1 Bank Ang	DTA1 Tailwind	DTA1 True Airspd	DTA1 vGround	DTA2	DTA2 Turn Rad	DTA2 Turn Alt	DTA2 Turn Spd	DTA2 Bank Ang	DTA2 Tailwind	DTA2 True Airspd	DTA2 vGround
VI					0.0	0.0					0.66	2.83	600.0	265.0	25.49	30.0	274.24	304.24
CF	JWOLF	FLY_BY	0.66	2.83	600.0	265.0	25.49	30.0	274.24	304.24	1.63	8.32	2600.0	265.0	11.1	52.15	282.58	334.72
TF	JIRAN	FLY_BY	1.63	8.32	2600.0	265.0	11.1	52.15	282.58	334.72	0.0	19.4	3645.78	265.0	5.0	54.22	287.08	341.3
TF	BIGSE	FLY_BY	0.0	19.4	3645.78	265.0	5.0	54.22	287.08	341.3	0.0	20.15	4671.01	265.0	5.0	56.25	291.6	347.85
TF	GOTHA	FLY_BY	0.0	20.15	4671.01	265.0	5.0	56.25	291.6	347.85	0.0	21.05	5850.1	265.0	5.0	58.58	296.93	355.52
TF	BUFFI	FLY_BY	0.0	21.05	5850.1	265.0	5.0	58.58	296.93	355.52	0.0	32.07	11099.53	300.0	5.0	70.17	368.62	438.79

KMCO:RW35R:FATHE:VIYAP Criteria Failures and Warnings

RDO308: [Approval Required] In the route beginning at RW35R, the segment from DER to JWOLF requires an ATC climb gradient of 547.68... feet/NM in excess of 500 feet/NM/600 feet/NM.

KMCO:RW36L:FATHE:VIYAP Evaluation Results Part 1/2

Leg Tp	End Pt	Turn Tp	Alt Restr	Alt Restr 2	Spd Restr	Min CG Calc Alt	Turn Ang	Leg Length	Min Seg Length
VA			+600.00			600.00	0.0	2.53	2.51
DF	KYOTE	FLY_BY	+2300.00			830.91	0.15	1.15	0.0
TF	EARRS	FLY_BY	+3000.00		230.00	1269.19	7.85	2.19	1.0
TF	TRYNA	FLY_BY	-7000.00			2195.05	0.95	4.63	1.0
TF	BUFFI	FLY_BY				4814.40	10.82	13.09	2.79

KMCO:RW36L:FATHE:VIYAP Evaluation Results Part 2/2

Leg Tp	End Pt	Turn Tp	DTA1	DTA1 Turn Rad	DTA1 Turn Alt	DTA1 Turn Spd	DTA1 Bank Ang	DTA1 Tailwind	DTA1 True Airspd	DTA1 vGround	DTA2	DTA2 Turn Rad	DTA2 Turn Alt	DTA2 Turn Spd	DTA2 Bank Ang	DTA2 Tailwind	DTA2 True Airspd	DTA2 vGround
VA					0.0	0.0					0.0		600.0	230.0	0.0	30.0	238.02	268.02
DF	KYOTE	FLY_BY	0.0		600.0	230.0	0.0	30.0	238.02	268.02	0.0	14.56	2300.0	230.0	5.0	51.55	244.15	295.7
TF	EARRS	FLY_BY	0.0	14.56	2300.0	230.0	5.0	51.55	244.15	295.7	0.0	15.19	3395.79	230.0	5.0	53.72	248.22	301.95
TF	TRYNA	FLY_BY	0.0	15.19	3395.79	230.0	5.0	53.72	248.22	301.95	0.0	20.94	5710.76	265.0	5.0	58.31	296.3	354.6
TF	BUFFI	FLY_BY	0.0	20.94	5710.76	265.0	5.0	58.31	296.3	354.6	2.79	29.49	11582.56	300.0	5.41	69.93	367.93	437.86

KMCO:RW36L:FATHE:VIYAP Criteria Failures and Warnings

RDO308: [Approval Required] In the route beginning at RW36L, the segment from DER to KYOTE requires an ATC climb gradient of 598.15... feet/NM in excess of 500 feet/NM/600 feet/NM.

KMCO:RW36R:FATHE:VIYAP Evaluation Results Part 1/2

Leg Tp	End Pt	Turn Tp	Alt Restr	Alt Restr 2	Spd Restr	Min CG Calc Alt	Turn Ang	Leg Length	Min Seg Length
VA			+600.00			600.00	0.0	2.54	2.52
DF	FACTS	FLY_BY	+2300.00			842.55	0.07	1.21	0.0
TF	HANDD	FLY_BY	+3000.00		230.00	1290.18	5.03	2.24	1.0
TF	TRYNA	FLY_BY	-7000.00			2188.59	1.95	4.49	1.0
TF	BUFFI	FLY_BY				4807.93	10.82	13.09	2.79

KMCO:RW36R:FATHE:VIYAP Evaluation Results Part 2/2

Leg Tp	End Pt	Turn Tp	DTA1	DTA1 Turn Rad	DTA1 Turn Alt	DTA1 Turn Spd	DTA1 Bank Ang	DTA1 Tailwind	DTA1 True Airspd	DTA1 vGround	DTA2	DTA2 Turn Rad	DTA2 Turn Alt	DTA2 Turn Spd	DTA2 Bank Ang	DTA2 Tailwind	DTA2 True Airspd	DTA2 vGround
VA					0.0	0.0					0.0		600.0	230.0	0.0	30.0	238.02	268.02
DF	FACTS	FLY_BY	0.0		600.0	230.0	0.0	30.0	238.02	268.02	0.0	14.56	2300.0	230.0	5.0	51.55	244.15	295.7
TF	HANDD	FLY_BY	0.0	14.56	2300.0	230.0	5.0	51.55	244.15	295.7	0.0	15.2	3419.16	230.0	5.0	53.77	248.31	302.08
TF	TRYNA	FLY_BY	0.0	15.2	3419.16	230.0	5.0	53.77	248.31	302.08	0.0	20.91	5665.49	265.0	5.0	58.22	296.09	354.31
TF	BUFFI	FLY_BY	0.0	20.91	5665.49	265.0	5.0	58.22	296.09	354.31	2.79	29.45	11550.86	300.0	5.41	69.87	367.74	437.61

KMCO:RW36R:FATHE:VIYAP Criteria Failures and Warnings

RDO308: [Approval Required] In the route beginning at RW36R, the segment from DER to FACTS requires an ATC climb gradient of 588.34... feet/NM in excess of 500 feet/NM/600 feet/NM.

ATTENTION ALL USERS PAGE (AAUP)

1. **PREFLIGHT:** All aircraft capable of conducting terminal RNAV procedures should expect an RNAV SID clearance. If unable to accept the RNAV SID clearance, advise Clearance Delivery. 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:
- Preplan runway using guidance in Section 5, ensure expected departure runway is selected/displayed
 - Ensure all transitions are selected/displayed 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 or altitude assigned by ATC
 - Advise ATC prior to takeoff if unable to verify correct loading or if unable to comply with the SID
 - Do not modify or manually construct RNAV procedures
2. **BEFORE TAKEOFF:** Ensure that the Departure Runway assigned on taxi is displayed by the navigation system.
- Verify all modification, including runway changes, in the navigation system with the RNAV SID
 - Verify aircraft symbol relative to the runway symbol, lateral track, and displayed route agree with the ATC clearance (electronic navigation map displays)
 - Confirm proper navigation/FMS selection are displayed when runway or route changes are issued by ATC
3. **LINE UP/TAKEOFF:** Pilots can expect a takeoff clearance from ATC that will include "RNAV to" the first waypoint on the SID, or a heading. If tower issues an initial departure heading in take-off clearance, DO NOT DELETE the ATC issued RNAV SID from active FMS, and expect ATC DIRECT/JOIN clearance to resume RNAV SID during departure.
- SAMPLE PHRASEOLOGY
 - i. Clearance: "RNAV to FACTS, Runway 36R, Cleared for Takeoff"
 - ii. Response: "RNAV to FACTS, Runway 36R, Cleared for Takeoff"
 - Verify the correct runway and SID are selected/displayed and the correct lateral navigation mode is available and ready for use after takeoff
 - If the takeoff clearance does not match the selected/displayed procedure, request an initial heading from tower or refuse the takeoff clearance until the discrepancy is resolved
4. **AFTER TAKEOFF:** Unless instructed to fly a heading by ATC, engage lateral navigation flight guidance as soon as practical but no later than 400 feet AGL, and fly the departure. 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 based on established/published RNP tolerance
 - 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

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ATTENTION ALL USERS PAGE (AAUP)

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5. **SPECIFIC INFORMATION:** 0700-2300 local runway 36L/R, 35L/R RNAV simultaneous departures, all RNAV equipped aircraft departing should expect to fly an MCO RNAV DEPARTURE SID. In the event of weather or other non-standard events, headings may be issued in lieu of an RNAV off the ground take off clearance.
- Final runway assignments will be issued on initial contact with Ground Control
 - For planning purposes, pilots can anticipate the preferred runway assignment based upon the information below

Departing Runways 35L/R 17L/R

DDANY, MZULO, JEEMY, FATHE - Expect to Depart Runway 35L

Departing Runways 36L/R 18L/R

RDSOX, OSPRY, FSHUN - Expect to Depart Runway 36R

