

FEDERAL AVIATION ADMINISTRATION
FLIGHT STANDARDS SERVICE
STANDARD TERMINAL ARRIVAL (STAR)

Bearings, headings, courses, tracks and radials are magnetic. Elevations and altitudes are in feet, MSL. Altitudes are minimum altitudes unless otherwise indicated.
Distances are in nautical miles (NM). Graphic depictions attached.

Arrival Name	Number	STAR Computer Code	Superseded Number	Dated	Effective Date
MALNR (RNAV)	FIVE	MALNR.MALNR5	FOUR	09/13/2018	

TRANSITION ROUTES:

Transition Name	Transition Computer Codes	From FIX/NAVAID	To FIX/NAVAID	Course	Distance	MEA	MOCA	MAA	Crossing Altitudes / Fixes
JURDI	JURDI.MALNR5	JURDI	JURDI			11000			AT FL230
			SMIRF	034.48	34.68	11000	1900		
			MALNR	035.66	12.52	11000	1900		BETWEEN 11000 AND 17000
PYRES	PYRES.MALNR5	PYRES	PYRES						
			JURDI	067.93	96.71	11000	1900		AT FL230
			SMIRF	034.48	34.68	11000	1900		
			MALNR	035.66	12.52	11000	1900		BETWEEN 11000 AND 17000
REDFH	REDFH.MALNR5	REDFH	REDFH						
			HOGIL	016.97	35.00	11000	1700		
			ETBUY	017.92	09.58	11000	1800		
			MALNR	015.29	16.86	11000	1900		BETWEEN 11000 AND 17000

ARRIVAL ROUTE DESCRIPTION:

LANDING RWY 5L/R: FROM MALNR ON TRACK 029.68/6.17 TO CROSS NYGEL BETWEEN 9000 AND 10000 AND AT 250 KIAS, THEN ON TRACK 064.39/17.00 TO CROSS OTTOS AT 6000 AND AT 210 KIAS. EXPECT ILS OR RNAV RWY 5L/R APPROACH.

LANDING RWY 23L: FROM MALNR ON TRACK 052.40/19.75 TO CROSS WISPY BETWEEN 10000 AND 12000 AND AT 280 KIAS, THEN ON TRACK 062.72/16.09 TO CROSS CAKEY AT 8000, THEN ON TRACK 092.12/6.32 TO CROSS JODUS AT OR ABOVE 7000 AND AT 220 KIAS, THEN ON TRACK 092.19/3.00 TO CHIRM, THEN ON TRACK 054.10/2.00 TO CROSS KENCH AT 6000 AND AT 210 KIAS, THEN ON TRACK 054.10. EXPECT RNP RWY23L APPROACH. NON-RNP AIRCRAFT: EXPECT RADAR VECTORS TO FINAL APPROACH COURSE.

LANDING RWY 23R: FROM MALNR ON TRACK 052.40/19.75 TO CROSS WISPY BETWEEN 10000 AND 12000 AND AT 280 KIAS, THEN ON TRACK 062.72/16.09 TO CROSS CAKEY AT 8000, THEN ON TRACK 023.35/6.21 TO CROSS FRETO AT OR ABOVE 7000 AND AT 220 KIAS, THEN ON TRACK 023.37/3.26 TO ORENG, THEN ON TRACK 054.10/2.00 TO CROSS GLEYS AT 6000 AND AT 210 KIAS, THEN ON TRACK 054.10. EXPECT RNP RWY23R APPROACH. NON-RNP AIRCRAFT: EXPECT RADAR VECTORS TO FINAL APPROACH COURSE.

PROCEDURAL DATA NOTES:

NOTE: RADAR REQUIRED

NOTE: RNAV 1

NOTE: DME/DME/IRU OR GPS REQUIRED

NOTE: TURBOJET AIRCRAFT ONLY

NOTE: REDFH TRANSITION ASSIGNED BY ATC ONLY.

NOTE: JET AIRCRAFT DESCEND VIA MACH NUMBER UNTIL 280K, MAINTAIN 280K UNTIL SLOWED BY THE STAR OR ATC, IF UNABLE, ADVISE ATC.

NOTE: LANDING NORTHEAST: USE RWY 5L TRANSITION. EXPECT RUNWAY ASSIGNMENT FROM TRACON PRIOR TO MALNR.

NOTE: LANDING SOUTHWEST: USE RWY 23R TRANSITION. EXPECT RUNWAY ASSIGNMENT FROM TRACON PRIOR TO MALNR.

FIXES AND/OR HOLDING PATTERNS:

CHART HOLDING AT NYGEL: SW, RT, 064.39 INBOUND, 10 NM LEGS.

CHART HOLDING AT MALNR: S, RT, 015.29 INBOUND, 10 NM LEGS.

CHART: PETTO



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COMMUNICATIONS:

RDU ATIS
RALEIGH APP CON

AIRPORTS SERVED:

RALEIGH-DURHAM INTL, RALEIGH/DURHAM, NC (KRDU)

LOST COMMUNICATIONS PROCEDURE:

REMARKS:

ADDITIONAL FLIGHT DATA:

DME/DME ASSESSMENT: SAT (RNP 2.0)
MAGNETIC VARIATION: KRDU 09W/2020
CHART: R5311 A, B, C.
DO NOT CHART MOCAs.
CHART AT OTTOS TERMINUS: KRDU LDG RWY 5L/R.
CHART AT KENCH TERMINUS: KRDU LDG RWY 23L.
CHART AT GLEYS TERMINUS: KRDU LDG RWY 23R.

FLIGHT INSPECTED BY:

Thomas Conklin
Name

FIOG
Organization

03/02/2020
Date

Digitally signed by
DONALD H LANIER
Nov 06, 2020

DEVELOPED BY:

Tara N. Martinelli
Name

AJV-A431
Organization

01/03/2020
Date

Signature
Digitally signed by
DONALD H LANIER
Nov 06, 2020

APPROVED BY:

George Davis
Name

AJV-A430
Organization

Date

Signature
Digitally signed by
DONALD H LANIER
Nov 06, 2020
Signature

CHANGES:

1. TREAL TRANSITION DELETED FROM PROCEDURE.
2. PETTO TRANSITION DELETED FROM PROCEDURE.
3. FLO VORTAC REMOVED AND TRANSITION SHORTED TO START AT EXISTING POINT REDFH; TRANSITION RENAMED REDFH.
4. JURDI MOVED 3.00 NM SOUTHWEST



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5. JURDI TRANSITION CREATED.
6. AT OR BELOW FL210 RESTRICTION REMOVED FROM SMIRF.
7. MALNR MOVED 3.50 NM SOUTHWEST.
8. MALNR RESTRICTION CHANGED FROM "AT OR ABOVE 11000 AND AT 250K" TO "BETWEEN 11000 AND 17000."
9. BUZZY REMOVED FROM PROCEDURE.
10. RASKL REMOVED FROM PROCEDURE.
11. ALL RUNWAY TRANSITIONS AMENDED TO BEGIN AT MALNR; COMMON ROUTE REMOVED.
12. NYGEL WITH "BETWEEN 9000 AND 10000 AND AT 250K" RESTRICTION ADDED TO RWY 5L/R TRANSITION.
13. HOLDING AT NYGEL ADDED.
14. NEDIE DELETED FROM RWY 5L/R TRANSITION.
15. OTTOS MOVED 1.29 NM SOUTHWEST.
16. OTTOS RESTRICTION CHANGED FROM "AT 6000 AND AT 230K" TO "AT "6000 AND AT 210K."
17. WISPY RESTRICTION CHANGED FROM "AT OR BELOW 12000" TO "BETWEEN 10000 AND 12000 AND AT 280K."
18. CAKEY MOVED 0.69 NM SOUTHWEST.
19. CAKEY RESTRICTION CHANGED FROM "AT 8000 AND AT 210K" TO "AT 8000."
20. "AT OR ABOVE 7000 AND AT 220K" RESTRICTION ADDED AT FRETO.
21. ORENG ADDED TO RWY 23R TRANSITION.
22. GLEYS MOVED 0.71 NM NORTHEAST.
23. "AT 6000 AND AT 210K" RESTRICTION ADDED AT GLEYS.
24. JOLTY REMOVED FROM RWY 23R TRANSITION.
25. JODUS MOVED 0.29 NM NORTH.
26. "AT OR ABOVE 7000 AND AT 220K" RESTRICTION ADDED AT JODUS.
27. CHIRM ADDED TO RWY 23L TRANSITION.
28. KENCH MOVED 0.08 NM SOUTHWEST.
29. "AT 6000 AND AT 210K" RESTRICTION ADDED AT KENCH.
30. LEZZY REMOVED FROM RWY 23L TRANSITION.
31. NOTE REGARDING LANDING DIRECTION AMENDED.
32. ADDED STAR TERMINUS INFORMATION.
33. MEAs REMOVED FROM RUNWAY ARRIVAL ROUTES.
34. MOCAs REMOVED FROM PROCEDURE.
35. PETTO RETAINED AS STAND-ALONE POINT.

REASONS:

- 1-2. IMPROVE PROCEDURE UTILITY.
3. VOR MON, CONNECTIVITY TO ENROUTE STRUCTURE.
4. FACILITATE DESCENT.
5. IMPROVE PROCEDURE UTILITY.
6. RESTRICTION NOT NEEDED.



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7. FACILITATE DESCENT FOR RWY 5L/R. 8. FACILITATE DESCENT FOR RWY 23L/R. 9-10. NOT NEEDED ON PROCEDURE. 11. IMPROVE PROCEDURE EFFICIENCY. 12. FACILITATE DESCENT FOR RWY 5L/R. 13. FACILITATE HOLDING FOR RWY 5L/R OPERATIONS. 14. NOT NEEDED ON PROCEDURE 15. FACILITATE RNP AND ILS APPROACHES. 16. CRITERIA. 17. FACILITATE DESCENT FOR RWY 23L/R. 18-23. FACILITATE RNP RWY23R. 24. CRITERIA. 25-29. FACILITATE RNP RWY23L. 30. CRITERIA. 31. ORDER 8260.19H,4-5-1.b.(8)(c). 32. ORDER 8260.19H,4-5-1.b.(8)(b). 33. ORDER 8260.3DM 2-2-7.e.(3). 34. ATC REQUEST TO REDUCE CHART CLUTTER.					

THIS IS AN UPDATED COPY OF THE FORM DEVELOPED ON 01/03/2020

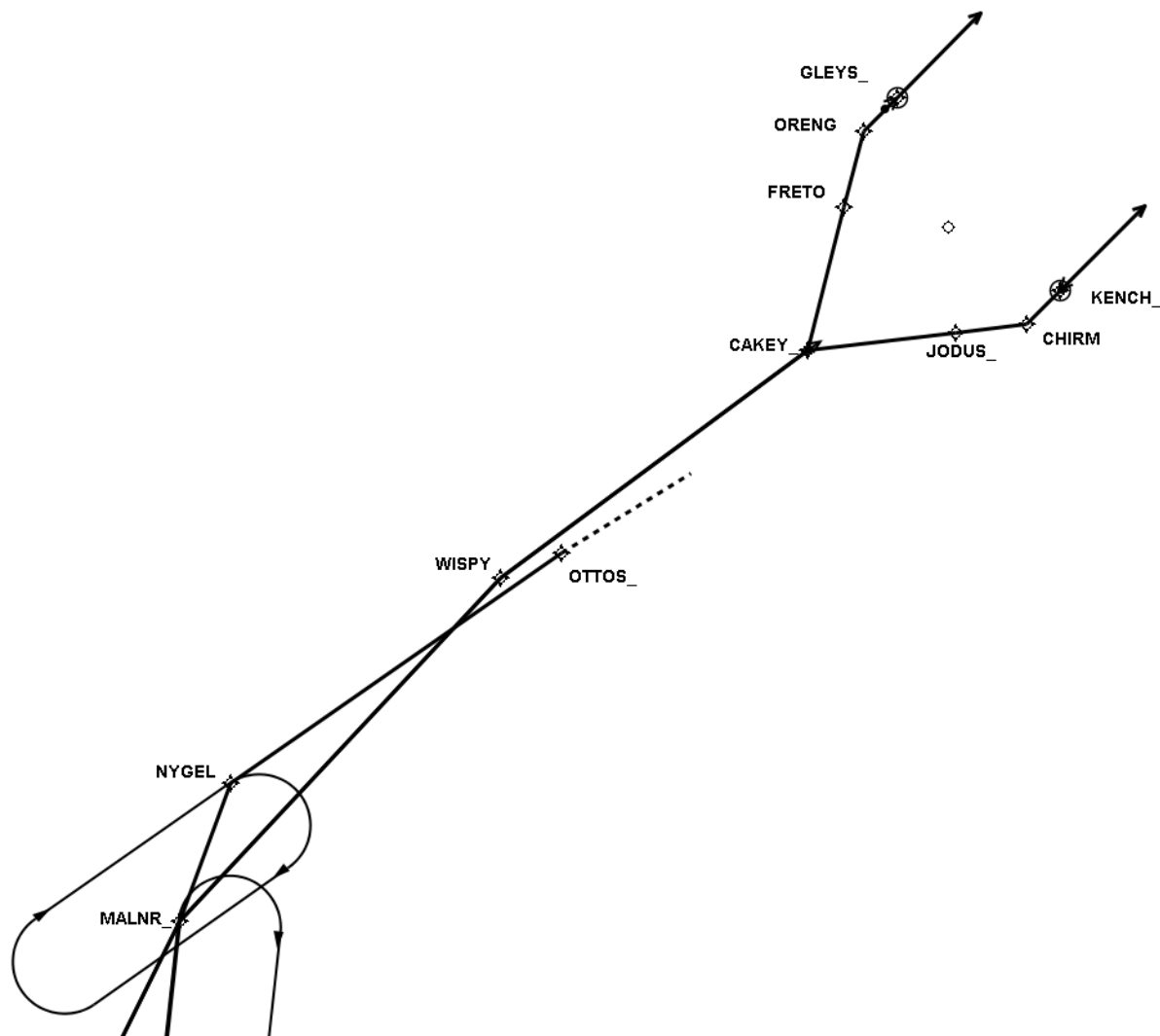
1. ADDED NOTE: JET AIRCRAFT DESCEND VIA MACH NUMBER UNTIL 280K, MAINTAIN 280K UNTIL SLOWED BY THE STAR OR ATC, IF UNABLE, ADVISE ATC.



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MALNR (RNAV)	FIVE	MALNR.MALNR5	FOUR	09/13/2018	
Graphic Depiction 1					



QUALITY
18
CHECKED

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Diagram illustrating a network structure with nodes and connections:

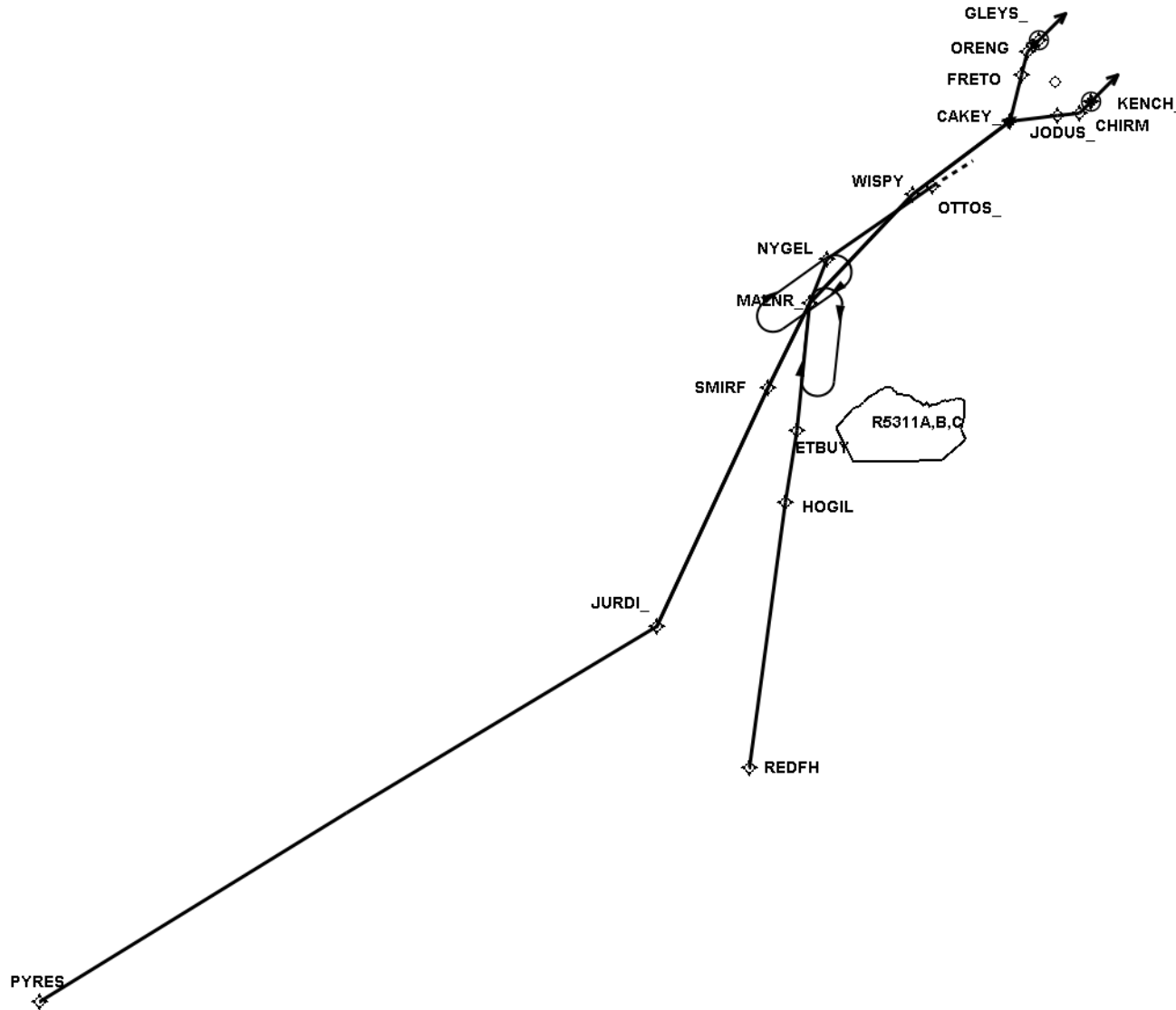
- Nodes: PYRES, JURDI_, REDFH, HOGIL, ETBUY, SMIRF, MALNR, NYGEL.
- Connections:
 - PYRES to JURDI_ (straight line)
 - JURDI_ to REDFH (straight line)
 - JURDI_ to MALNR (straight line)
 - REDFH to HOGIL (straight line)
 - HOGIL to ETBUY (straight line)
 - ETBUY to SMIRF (straight line)
 - SMIRF to MALNR (straight line)
 - MALNR to NYGEL (straight line)
 - Curved lines with arrows indicating a path from MALNR to NYGEL and back.
 - Curved line with an arrow from HOGIL to ETBUY.

Page 6 of 7

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MALNR (RNAV)	FIVE	MALNR.MALNR5	FOUR	09/13/2018	
Graphic Depiction 3					



QUALITY
18
CHECKED

FEDERAL AVIATION ADMINISTRATION
FLIGHT STANDARDS SERVICE
STAR (DATA RECORD)

Arrival Name MALNR (RNAV)		Number FIVE		STAR Computer Code MALNR.MALNR5		Superseded Number FOUR		Dated 09/13/2018	Effective Date
FIX/NAVAID	LAT/LONG	C	FO/FB	LEG TYPE	TC	DIST (NM)	ALTITUDE	SPEED	REMARKS
En Route Transition									
JURDI	344102.92N / 0795214.38W	Y		IF			AT FL230		JURDI.MALNR5
SMIRF	351223.01N / 0793401.98W	Y	FB	TF	025.48	34.68			
MALNR	352335.22N / 0792709.67W	Y	FB	TF	026.66	12.52	11000B17000		
En Route Transition									
PYRES	335143.85N / 0813240.96W	Y		IF					PYRES.MALNR5
JURDI	344102.92N / 0795214.38W	Y	FB	TF	058.93	96.71	AT FL230		
SMIRF	351223.01N / 0793401.98W	Y	FB	TF	025.48	34.68			
MALNR	352335.22N / 0792709.67W	Y	FB	TF	026.66	12.52	11000B17000		
En Route Transition									
REDFH	342236.35N / 0793708.34W	Y		IF					REDFH.MALNR5
HOGIL	345719.40N / 0793113.93W	Y	FB	TF	007.97	35.00			
ETBUY	350648.43N / 0792925.22W	Y	FB	TF	008.92	09.58			
MALNR	352335.22N / 0792709.67W	Y	FB	TF	006.29	16.86	11000B17000		
Runway Transition									
MALNR	352335.22N / 0792709.67W	Y		IF			11000B17000		
NYGEL	352921.79N / 0792429.67W	Y	FB	TF	020.68	06.17	9000B10000	AT 250K	
OTTOS	353900.81N / 0790719.59W	Y	FB	TF	055.39	17.00	AT 6000	AT 210K	
KRDU:RWY 5L/R									
Runway Transition									
MALNR	352335.22N / 0792709.67W	Y		IF			11000B17000		
WISPY	353756.34N / 0791030.99W	Y	FB	TF	043.40	19.75	10000B12000	AT 280K	
CAKEY	354727.38N / 0785434.34W	Y	FB	TF	053.72	16.09	AT 8000		
JODUS	354812.67N / 0784651.37W	Y	FB	TF	083.12	06.32	AT/ABOVE 7000	AT 220K	
CHIRM	354833.98N / 0784311.62W	Y	FB	TF	083.19	03.00			



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FIX/NAVAID	LAT/LONG	C	FO/FB	LEG TYPE	TC	DIST (NM)	ALTITUDE	SPEED	REMARKS
KENCH	354958.79N / 0784127.08W	Y	FO	TF	045.10	02.00	AT 6000	AT 210K	
KRDU:RWY 23L				FM	045.10				

Runway Transition									
MALNR	352335.22N / 0792709.67W	Y		IF			11000B17000		
WISPY	353756.34N / 0791030.99W	Y	FB	TF	043.40	19.75	10000B12000	AT 280K	
CAKEY	354727.38N / 0785434.34W	Y	FB	TF	053.72	16.09	AT 8000		
FRETO	355329.07N / 0785240.61W	Y	FB	TF	014.35	06.21	AT/ABOVE 7000	AT 220K	
ORENG	355638.80N / 0785140.83W	Y	FB	TF	014.37	03.26			
GLEYS	355803.61N / 0784956.11W	Y	FO	TF	045.10	02.00	AT 6000	AT 210K	
KRDU:RWY 23R				FM	045.10				