

Flight Procedures Cover Page	Task Action: FLIGHT CHECK	Task Type: STAR	Estimated Chart Date: 07/09/2026	APWS Task ID: F662247F78E74A97A3BF6FD3E45F8947	APWS Project ID: A551F53CA3554B80AF9DD42526A9B8F4
Procedure: PINNR FOUR ARRIVAL (RNAV) CENTENNIAL CO KAPA		Enroute: YES	Specialist: Sauer, David		Agreement Number:
Airport ID: KAPA			Airport City: DENVER		State: CO
Facility ID:	Facility Type:	Flight Inspection Remark Type: New FC Slot			
Procedure Comments: 8260-1: Waiver for speed 200K at REDZN, 210K at DEETU, and 240K at XJOIN. 8260-1: ROC reduction between XPATH and XBEEE. Approval Letter: 347 FT/NM DG between XPATH and XBEEE. POC: Kyle Thompson, AJV-A33, 405-954-2135 3/16/26: THIS IS AN UPDATED COPY OF THE FORM DEVELOPED ON 1/13/26. 1. UPDATED REMARK FROM "USED 200 FT MOUNTAINOUS ROC REDUCTION ON SEGMENT AJOIN TO XPATH..." TO "USED 16 FT MOUNTAINOUS ROC REDUCTION ON SEGMENT XJOIN TO XPATH..." 03/17/2026					



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FIPC DME/DME FORM						
PROCEDURE: PINNR FOUR ARRIVAL (RNAV) CENTENNIAL CO KAPA			AIRPORT NAME: CENTENNIAL		AIRPORT ID: KAPA	SPECIAL CONTROL NO: SG-04-011-26
FAC ID: PINNR4		CITY: DENVER			ST: CO	ORIG CHART DATE: 07/09/2026
DFL TYPE: PROC/D	THIRD PARTY: ☐ YES	EST. TIME ON SITE: 1.0	REIMB. NUMBER:	PTS TASK ID: F662247F78E74A97A3BF6FD3E45F8947		
PREFLIGHT NOTES						
REVIEWER:					DATE:	
COMMENTS:					CHECK ONE: ☐ FLT CK REQ ☐ NFCR ☐ REJECT	
					YES	NO
					CPV COMPLETE? ☒ X ☐	
PROCEDURE RESULTS						
INSPECTION DATE: 05/08/2026	CREW #: VN497	N #: N91	INSTRUMENT PROCEDURE STATUS: ☒ SAT ☐ SAT W/CHANGES ☐ UNSAT		ARINC CODING: ☒ SAT ☐ SAT/GOLD ☐ UNSAT	
FLIGHT INSPECTOR SIGNATURE: craig larson @ 05/08/2026 17:55			PRINTED NAME: LARSON, CRAIG RUSSELL			NOTAM INITIATED? ☐ YES ☒ NO
FLIGHT INSPECTOR REMARKS:						
DME/DME STATUS: ☐ SAT ☐ UNSAT		SPECIALIST SIGNATURE:			PRINTED NAME:	
SPECIALIST REMARKS:						
IN-FLIGHT OBSTACLE REPORT						
OBSTRUCTION ID #:	COORDINATES OR LOCATION:	GNSS ALTITUDE (MSL):	BAROMETRIC ALTITUDE (MSL):	HEIGHT ABOVE GROUND LEVEL:		

1. FLIGHT PROCEDURE IDENTIFICATION:

Centennial, CO
APA
PINNR (RNAV) STAR

2. WAIVER REQUIRED AND APPLICABLE STANDARD:

FAA Order 8260.3G paragraph 2-2-6, Obstacle Clearance, Chapter 14, paragraph 14-2-1 Obstacle Clearance, Primary Area b.(1): Reflects 2,000 feet of ROC must be applied to obstacles evaluated in the Primary Area that exist within the designated mountainous areas. Reflects ROC may be reduced to not less than 1,700 feet above terrain and vegetation in the designated mountainous areas of the Western United States.

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

There is an ATC operational requirement on the PINNR STAR to have aircraft cross XPATH waypoint AT 10500 feet MSL specifically when landing on Runway 35R at KAPA. XBEEE waypoint is the terminus point on the STAR runway transition to 35R and serves as the Initial Approach Fix for both the ILS and RNAV GPS approaches to Runway 35R at KAPA. Aircraft landing on Runway 35R at KAPA must descend after crossing XPATH waypoint to this altitude so that ATC meets the requirement to maintain 1,000 feet vertical separation from KDEN arrivals and departures that cross above at 10,000 feet MSL.

KAPA airport is located within the Western Mountainous Area designated under 14 CFR Part 95 Subpart B. FAA Order 8260.3G, paragraph 2-2-6, Obstacle Clearance, Chapter 14, paragraph 14-2-1.b states that 2,000 feet of ROC must be applied to obstacles evaluated in mountainous areas within the Primary Area of the OEA. Paragraph 14-2-1.b(1) states that ROC may be reduced to not less than 1,700 feet above terrain and vegetation in the designated mountainous areas of the Western United States. Paragraph 14-2-1.b(2) states that where reduced ROC is applied as described in paragraph 14-2-1.b(1), altitudes providing at least 1,000 feet of ROC over towers and/or other manmade obstacles/MO are authorized.

When evaluated against criteria, the segment of the PINNR STAR, XPATH to XBEEE waypoint, has a controlling obstacle (terrain + vegetation) with a height of 7807 feet MSL. Applying 2,000 feet of ROC and 200 feet for AAO, the minimum crossing restriction at XBEEE waypoint would have to be raised to 10000 feet MSL. Taking terrain (7707 feet MSL) and vegetation (100 feet) into consideration, the amount of reduced ROC needed for this segment to comply with the ATC operational crossing restriction, XBEEE waypoint AT 9000 feet MSL, is 807 feet. By Adjusting the reduced ROC for this leg segment to achieve AT 9,000 feet MSL crossing restriction at XBEEE waypoint would adhere to paragraph 14-2-1.b(2) keeping aircraft at least 1,000 feet above the highest manmade obstacle (7707 terrain + AAO). No precipitous terrain exists within the Primary or Secondary Areas of the OEA for this segment. Also, the terrain hit is behind the XBEEE and slightly in front of XPATH.

When evaluated against criteria, the segment of the PINNR STAR, XJOIN to XPATH waypoint, has (terrain) with a height of 8416 feet MSL. Applying 2,000 feet of ROC and 200 feet for AAO, the minimum crossing restriction at XPATH waypoint would have to be raised to 10616 feet MSL. Taking terrain and 100 ft vegetation (8516) into consideration, the amount of reduced ROC needed for this segment to comply with the ATC operational crossing restriction, XPATH waypoint AT 10500 feet MSL, is 16 feet. Precipitous terrain does exist within the Primary OEA for this segment, after considering the controlling obstacle is located prior to XJOIN waypoint, which aircraft must cross AT 12000, it was determined ROC reduction is safe.

4. EQUIVALENT LEVEL OF SAFETY PROVIDED:

The PINNR STAR was designed with industry input (Denver ARTCC, Denver Approach Control, AFS, AIS, and WFPT) and has their endorsement based on various aircraft flight simulator results. The leg segment XPATH waypoint to XBEEE waypoint is currently an approach procedure initial segment where only 1,000 feet of ROC is applied. Aircraft crossing XBEEE waypoint AT 9,000 feet MSL adheres to 8260.3F Paragraph 14-2-1.b(2) providing at least 1,000 feet of ROC over towers and/or other manmade obstacles/AAO. The highest manmade obstacle (6,833 feet MSL) or AAO (7,907 feet MSL) within the OEA for this leg segment, XPATH waypoint to XBEEE waypoint, allows for 1,201 feet of obstacle clearance above manmade/AAO obstacles.

An evaluation for this leg segment was completed within 10NM of all segment terrain points above 6,800 feet MSL. The greatest terrain elevation difference from any of these points is 2,944 feet. Based on ICAO definition of mountainous terrain (>3,000 feet elevation difference within 10NM). All terrain points that would drive a segment altitude AT 9,000 feet, after 200 feet AAO and 2,000 feet ROC is applied, would not be classified as mountainous and would only require 1,000 feet ROC. Any areas of precipitous terrain within 10NM of this leg segment OEA are a minimum 4NM behind the aircraft at the point it descends below 2,000 feet ROC.

5. ALTERNATIVE ACTIONS DEEMED NOT FEASIBLE:

Alternatives were considered to build the segment XJOIN-XPATH-XBEEE, however none were feasible due to the field elevation of KAPA and the arrival interactions with KDEN arrival and departure traffic. The PINNR STAR runway transition to 35R ends at XBEEE waypoint, where XBEEE is a Fly-By waypoint. XBEEE waypoint also serves as the Initial Approach Fix for both the ILS and RNAV GPS approaches to KAPA Runway 35R.

If ATC does not clear aircraft for either the ILS or RNAV GPS approach to KAPA Runway 35R in a timely manner from the PINNR STAR, it is possible for aircraft to continue flying on ATC assigned heading to the West. When this occurs, it creates additional workload for ATC and becomes a safety issue due to rising terrain and MVAs to the West. It was determined that XBEEE is required to cross at 9,000 feet MSL to ensure a sufficient level of safety within Denver Approach Control's airspace. Raising the crossing restriction to 10,000 feet MSL would not be feasible as KDEN arrival and departure traffic, depending on the airport configuration, are already at that altitude. Raising the KDEN arrival traffic to accommodate would result in aircraft intercepting the final above the glide path altitude on the approaches.

6. COORDINATION WITH USER ORGANIZATIONS (SPECIFY):

Denver ARTCC
Denver Approach Control
Airport Authorities for serviced airports.
WSC OSG

7. SUBMITTED BY:

DATE	OFFICE IDENTIFICATION	TITLE
01/20/26	AJV-A33	KYLE THOMPSON, MANAGER

SIGNATURE
Digitally signed by
ALLAN WILL
Mar 17, 2026

8. AFS ACTIONS:

☐ APPROVED ☐ DISAPPROVED ☐ NOT REQUIRED

COMMENTS:

DATE	ROUTING SYMBOL	SIGNATURE
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1. FLIGHT PROCEDURE IDENTIFICATION:

Centennial, CO
APA
PINNR (RNAV) STAR

2. WAIVER REQUIRED AND APPLICABLE STANDARD:

FAA Order 8260.58C, paragraph 1-2-5, Table 1-2-2, Indicated Airspeeds (KIAS):
Reflects 250 KIAS is the appropriate airspeed for Category B aircraft AT or ABOVE 10,000 feet.
Note 3 states, 250 KTS AT or ABOVE 10,000 feet MSL except for initial and/or STAR termination fix.
Note 2 states, airspeed restrictions may be established at a charted fix to reduce turn radius, avoid obstacles
accommodate ATC request, etc...

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

KAPA: At or Below 240 KIAS at XBEEE

At KAPA, there is an operational requirement resulting in a design constraint to have aircraft cross XBEEE at 9,000 feet MSL and below 240 KIAS. The XBEEE waypoint is the terminus point on the STAR and serves as the Initial Approach Fix for both the ILS and RNAV GPS approach to Runway 35R at KAPA. Aircraft landing at KAPA must descend after crossing XJOIN at 12000ft and at 240 KIAS in order to meet the restrictions at XBEEE for the transitions to the approaches and to be at an acceptable and manageable speed for sequencing.

KAPA: At 210 KIAS at DEETU

There is an ATC operational requirement on the PINNR STAR to have aircraft cross DEETU with a 210 KIAS speed restriction above 10000. The speed is needed for leg length criteria. This portion of the PINNR STAR serves KAPA.

KLMO and KBJC: 200 KIAS at REDZN and PYDRT

There is an ATC operational requirement on the PINNR STAR to have aircraft cross REDZN and PYDRT with a 200 KIAS speed restriction due to aircraft descending below Class Bravo Airspace and compliance with 14 CFR § 91.117. This portion of the STAR serves KLMO and/or KBJC.

4. EQUIVALENT LEVEL OF SAFETY PROVIDED:

The PINNR STAR was designed with industry input (Denver ARTCC, Denver Approach Control, AFS, AIS, and WSC OSG) and has their endorsement based on results from core working groups. KAPA has confirmed the aircraft they serve primarily consists of general aviation aircraft that could meet the restrictions at XBEEE for the transitions to the approaches and to be at an acceptable and manageable speed for sequencing.

Denver ARTCC and Denver Approach Control confirmed that the airspeed restrictions at DEETU, REDZN, and PYDRT are manageable and will not result in any safety issues to the NAS.

If operators exist outside of the above norms, those operators still have the ability to refuse the STAR based on inability to meet speed restrictions.

5. ALTERNATIVE ACTIONS DEEMED NOT FEASIBLE:

Regarding XBEEE, alternatives were considered, however none were feasible due to the KAPA field elevation and the glideslope intercept altitude on the Instrument Approaches. Another factor is the need for slower airspeeds when transitioning to the Instrument Approaches and in order for ATC to safely sequence aircraft entering the terminal environment in order for ATC to safely sequence aircraft at KAPA.

Regarding DEETU, ATC concurred that the speed restriction was necessary for leg length criteria.

ATC also confirmed that the REDZN and PYDRT speed restrictions were necessary due to the complexity of class B airspace and to comply with 14 CFR § 91.117. PYDRT can not be moved because it is used on the KBJC RNAV GPS RWY 12L. REDZN can not be moved because it is used on the BRNKO RNAV STAR.

6. COORDINATION WITH USER ORGANIZATIONS (SPECIFY):

Denver ARTCC
Denver Approach Control
Airport Authorities for serviced airports.
WSC OSG

7. SUBMITTED BY:

DATE	OFFICE IDENTIFICATION	TITLE
01/20/26	AJV-A33	KYLE THOMPSON, MANAGER

SIGNATURE

Digitally signed by

ALLAN WILL

Mar 17, 2026

8. AFS ACTIONS:

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

COMMENTS:

DATE	ROUTING SYMBOL	SIGNATURE
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Subject: Approval Request; PINNR Arrival, Centennial, Denver, CO (KAPA)

Request is for approval for a descent gradient of 347 Ft/Nautical Mile (NM), or 3.27 degrees from XPATH Waypoint to XBEEE Waypoint, a vertical loss of 1500 ft in 4.32 NM.

The requirement in Order 8260.3G, paragraph 2-2-8a(3) is:

(3) When a STAR contains a descent between fixes that passes through 10000 feet MSL, the maximum permissible DG is between 318 ft/NM and 330 ft/NM and is in proportion to the amount of the altitude change that is below/above 10000 feet MSL. Use formula 2-2-1 to determine the maximum DG (DGmax) between fixes that contain a descent that passes through 10000 feet MSL.

Using formula 2-2-1, the maximum descent gradient is 322 ft/NM from XPATH to XBEEE based on the altitude restrictions of 10500 at XPATH and 9000 at XBEEE, over a distance of 4.32 NM.

There is an operational need to have the PINNR STAR operate between the altitudes designed into the procedure because of high terrain prior to XPATH waypoint and KDEN arriving and departing traffic after XBEEE waypoint. The leg segment from XPATH to XBEEE was part of the ILS RWY 35R and RNAV GPS RWY 35R approaches with these same restrictions. ATC safety concern with aircraft missing the turn after XPATH to fly the approach has required us to add this leg segment to the PINNR STAR and has been removed from the approaches.

PINNR FOUR ARRIVAL (RNAV) Transition Routes

DENVER, COLORADO

DENVER CENTER
269.3
DENVER APP CON
127.05 363.25
APA ATIS
120.3
BJC ATIS
126.25
CFO ATIS
119.025
CENTENNIAL TOWER
118.9
METRO TOWER*
118.6 233.7
SPACE PORT TOWER*
120.2

RNAV 1 - DME/DME/IRU or GPS.
RADAR required.

NOTE: Jet aircraft only.

PROTOTYPE-NOT FOR NAVIGATION

NOTE: Chart not to scale.

See following
page for
arrival routes

12 NM
(301°T)
(121°T)
BANNA
FL270 280K



17000
*12900
113°
(31)
(12)°T

10 NM
(301°T)
(293°)
CHOTS
FL230 250K
17000

14000
*12500
113°
(14)
(121°T)

FFEST
14000 250K

14000
*12000
056°
(4)
(064°T)
(121°T)
12000
113°
(8)

PINNRR
12000

10 NM
(244°T)
(236°)
(064°T)
(056°)
(064°T)
ESTES
16000 250K

HUBIE
15000

(CONTINUED ON FOLLOWING PAGE)

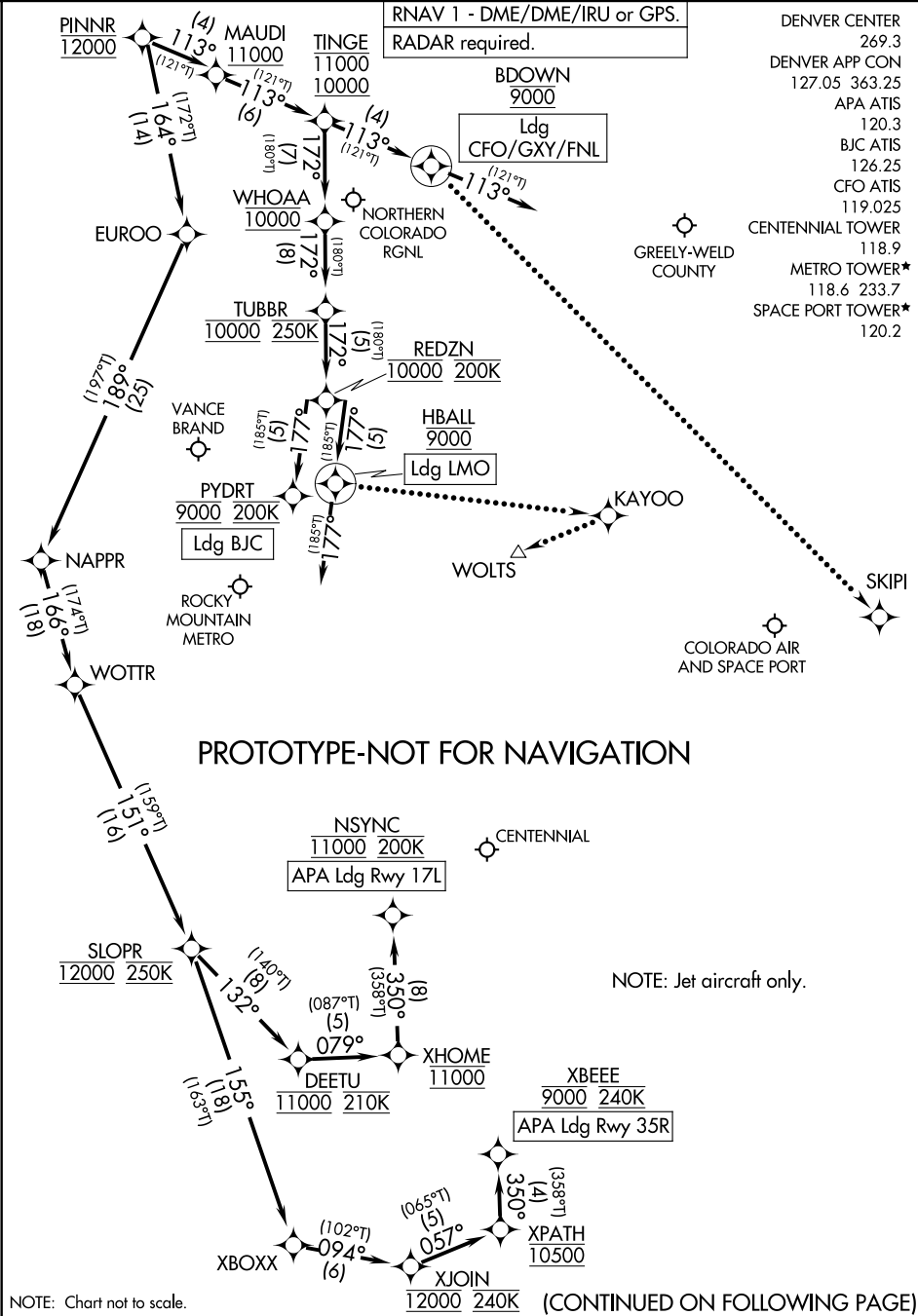
PINNR FOUR ARRIVAL (RNAV)

(PINNR, PINNRA) FIG

DENVER, COLORADO

PINNR FOUR ARRIVAL (RNAV) Arrival Routes

DENVER, COLORADO



PINNR FOUR ARRIVAL (RNAV)

DENVER, COLORADO

ARRIVAL ROUTE DESCRIPTION

BANNA TRANSITION (BANNA.PINNR4)
ESTES TRANSITION (ESTES.PINNR4)

LANDING APA RUNWAY 17L: From PINNR on track 164° to EUROO, then on track 189° to NAPPR, then on track 166° to WOTTR, then on track 151° to cross SLOPR at 12000 and at 250K, then on track 132° to cross DEETU at 11000 and at 210K, then on track 079° to cross XHOME at 11000, then on track 350° to cross NSYNC at 10000 and at 210K. Expect RNAV (RNP) Z RWY 17L approach.

LANDING APA RUNWAY 35R: From PINNR on track 164° to EUROO, then on track 189° to NAPPR, then on track 166° to WOTTR, then on track 151° to cross SLOPR at 12000 and at 250K, then on track 155° to XBOXX, then on track 094° to cross XJOIN at 12000 and at 240K, then on track 057° to cross XPATH at 10500, then on track 350° to cross XBEEE at 9000 and at 240K. Expect ILS or RNAV RWY 35R approach.

LANDING BJC: From PINNR on track 113° to cross MAUDI at or above 11000, then on track 113° to cross TINGE between 10000 and 11000, then on track 172° to cross WHOAA at 10000, then on track 172° to cross TUBBR at 10000 and at 250K, then on track 172° to cross REDZN at 10000 and at 200K, then on track 177° to cross PYDRT at 9000 and at 200K. Expect RNAV (GPS) RWY 12L approach or visual approach as assigned by ATC.

LANDING CFO/FNL/GXY: From PINNR on track 113° to cross MAUDI at or above 11000, then on track 113° to cross TINGE between 10000 and 11000, then on track 113° to cross BDOWN at 9000, then on track 113°. Expect RADAR vectors to final approach course.

LANDING LMO: From PINNR on track 113° to cross MAUDI at or above 11000, then on track 113° to cross TINGE between 10000 and 11000, then on track 172° to cross WHOAA at 10000, then on track 172° to cross TUBBR at 10000 and at 250K, then on track 172° to cross REDZN at 10000 and at 200K, then on track 177° to cross HBALL at 9000, then on track 177°. Expect RADAR vectors to final approach course.

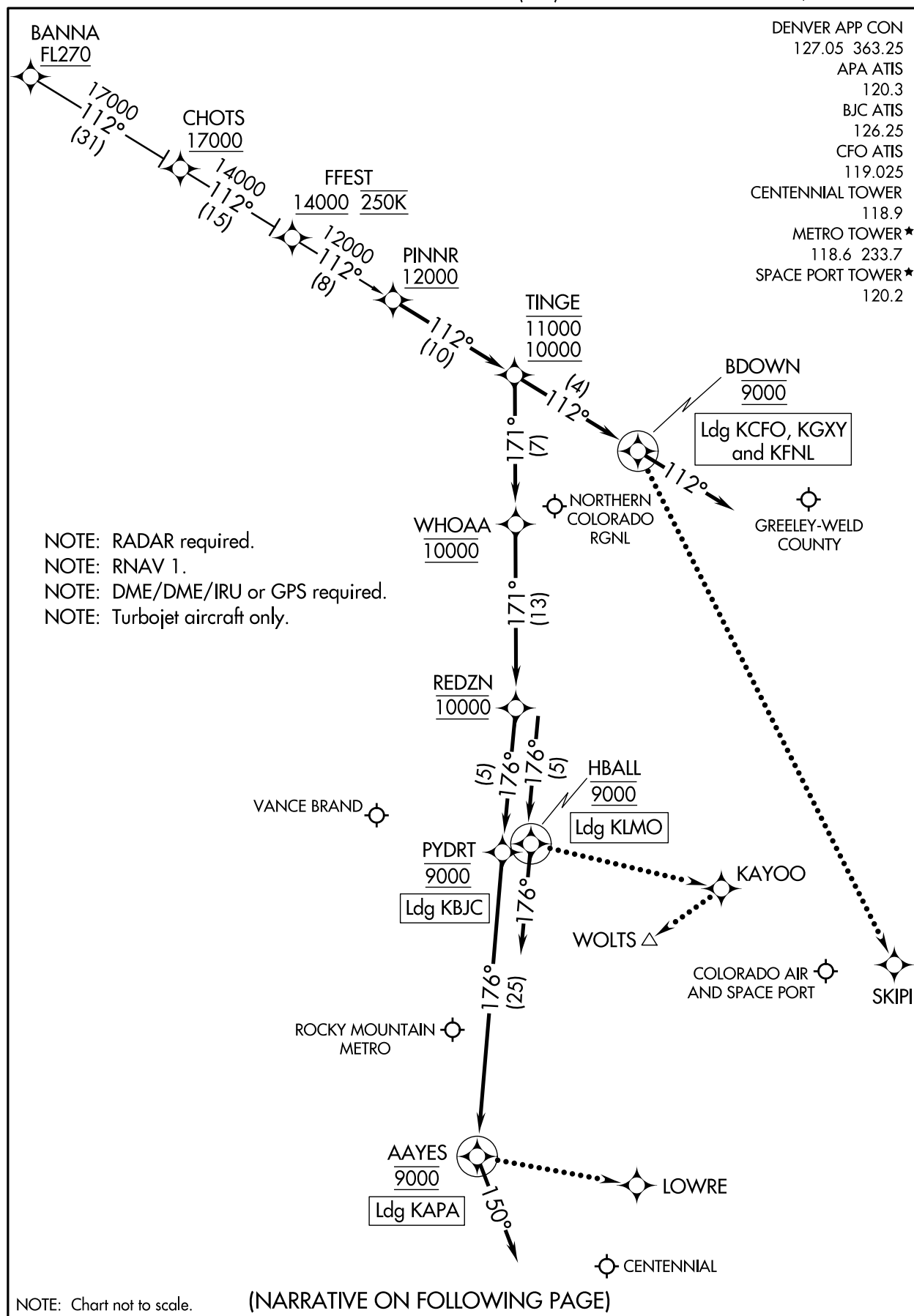
PROTOTYPE-NOT FOR NAVIGATION

LOST COMMUNICATIONS

LANDING BJC: From PYDRT proceed on RNAV (GPS) RWY 12L approach.

LANDING CFO: From BDOWN direct SKIPI and proceed on ILS or LOC RWY 26 approach.

LANDING LMO: From HBALL direct KAYOO direct WOLTS and proceed on RNAV (GPS) RWY 29 approach.



SW-1, 25 DEC 2025 to 22 JAN 2026

SW-1, 25 DEC 2025 to 22 JAN 2026

ARRIVAL ROUTE DESCRIPTION

BANNA TRANSITION (BANNA.PINNR3)

LANDING KAPA: From PINNR on track 112° to cross TINGE between 10000 and 11000, then on track 171° to cross WHOAA at 10000, then on track 171° to cross REDZN at 10000, then on track 176° to cross PYDRT at 9000, then on track 176° to cross AAYES at 9000, then on track 150°. Expect RADAR vectors to final approach course.

LANDING KBJC: From PINNR on track 112° to cross TINGE between 10000 and 11000, then on track 171° to cross WHOAA at 10000, then on track 171° to cross REDZN at 10000, then on track 176° to cross PYDRT at 9000. Expect RNAV (GPS) RWY 12L approach or visual approach as assigned by ATC.

LANDING KFNL/KCFO/KGXY: From PINNR on track 112° to cross TINGE between 10000 and 11000, then on track 112° to cross BDOWN at 9000, then on track 112°. Expect RADAR vectors to final approach course.

LANDING KLMO: From PINNR on track 112° to cross TINGE between 10000 and 11000, then on track 171° to cross WHOAA at 10000, then on track 171° to cross REDZN at 10000, then on track 176° to cross HBALL at 9000, then on track 176°. Expect RADAR vectors to final approach course.

LOST COMMUNICATIONS

LANDING KAPA: From AAYES direct LOWRE and execute RNAV (GPS) RWY 17L approach.

LANDING KBJC: From PYDRT execute RNAV (GPS) RWY 12L approach.

LANDING KCFO: From BDOWN direct SKIPI and execute ILS or LOC RWY 26 approach.

LANDING KLMO: From HBALL direct KAYOO direct WOLTS and execute RNAV (GPS) RWY 29 approach.

SW-1, 25 DEC 2025 to 22 JAN 2026

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