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NBAA

DEPARTURE / ARRIVAL RUNWAY SAFETY BRIEFING QUICK REFERENCE CARD

INTRODUCTION

Runway excursions, when an aircraft unintentionally departs the end or side of the runway surface, are the most common type of business aviation accidents. Detailed information on how to mitigate the level of risk of runway excursions can be found in the *NBAA Safety Resource, Reducing Business Aviation Runway Excursions*, which can be downloaded in PDF file format from the NBAA website at nbaa.org/runway-excursions.

This Departure / Arrival Runway Safety Briefing Quick Reference Card was developed by the NBAA Safety Committee as an adjunct resource to the *NBAA Safety Resource: Reducing Business Aviation Runway Excursions*. Designed for crewed and single-pilot fixed-wing operators, it consolidates critical threats, considerations, factors, and planning points in a one-page front-and-back format ready for use on the flight deck by flight crewmembers during departure and arrival safety briefings.

DEPARTURE BRIEFING

THREATS & DIFFERENCES DISCUSSION

Pilot Flying and Pilot Monitoring Relevant Threats and Mitigations Considerations:
Airport, Weather, Terrain, Traffic, Night, NOTAMs, Currency, ATC, Schedule, Fatigue, Aircraft, Maintenance, Cabin, Security, TFR's, General Flight Risk Assessment

ABORT CONSIDERATIONS

FAA Advisory Circular 120-62 thoroughly details how, as speed approaches V_1, the successful completion of a rejected take-off becomes increasingly more difficult. Consider these factors and adopt a STOP vs. GO-Oriented mindset.

STOP-Oriented

- Long Runway
- Poor Weather / Thunderstorms / Ice / Low IFR
- Marginal Climb Performance / Terrain
- Complicated Departure Procedure
- No Suitable Departure Alternate / No Return to Departure Airport
- Engineered Materials Arresting System (EMAS) Availability

GO-Oriented

- Critical Runway, less than 1,200 feet remaining after takeoff distance calculation (Flight Safety Foundation Global Action Plan for the Prevention of Runway Excursions recommendation)
- Runway Contamination
- Hazardous Overrun Condition / Terrain
- Heavy Take-off Weight
- Tailwind Considerations
- Inoperative Equipment

PLAN & DISCUSSION POINTS

- **Performance**: Runway Analysis, Independent takeoff performance calculations, EMAS, Crosswind / Tailwind
- **Configuration**: Slats/Flaps, Ice Protection, APU, Ignition, Brake Temperature, Static or Rolling Takeoff
- **Taxi**: Taxi Threats, Planned Route to Expected Runway, Low Visibility Procedures, Hot Spots, Runway Change Contingency
- **Departure**: Runway Heading Confirmation, Instrument Departure review, Minimum Safe Altitudes, Obstacle Clearance, Alternate Departure Procedure
- **Emergency Return / Emergency Takeoff Alternate**: Runway, Approach Type, Cruise or Pattern Altitude, Aircraft Configuration
- **Route**: Clearance, Independent Flight Management System (FMS) Route Verification (twice for single-pilot operations), Reasonable Distance
- **Emergency Evacuation**: Passenger Count, Crew Responsibilities, Checklist, Wind Considerations

QUESTIONS

ARRIVAL BRIEFING

THREATS & DIFFERENCES DISCUSSION

Pilot Flying and Pilot Monitoring Relevant Threats and Mitigations Considerations: Stabilized Approach Criteria Review, Threshold Crossing Height, Touchdown Point, Go-Around Plan, Bounced Landing Procedure, Runway Advisory and Alerting System Response, Applicable Inoperative Items

CONSIDERATIONS

- Landing Distance at Time of Arrival (LDTA) Calculation:
  - Must assess timeliness of runway conditions, field condition (FICON) NOTAMS, pilot braking action reports, and consider opposite direction arrival based on reported runway condition
  - Add 15% recommended safety margin (landing distance factors include a 15% safety margin)
- Autobrake or Manual Braking
- VREF additive effect on landing distance: Each 10% speed increase adds approximately 20% to landing distance (*FAA Pilots Handbook of Aeronautical Knowledge Chapter 11*)
- Tailwind Consideration: 10-knot tailwind increases landing distance by approximately 21% (FAA Advisory Circular 91-79A). The Flight Safety Foundation publication Reducing the Risk of Runway Excursions says "landing with a tailwind on a contaminated runway is not recommended."
- Do Not Reject after Deceleration Devices are deployed

LANDING DISTANCE FACTORS

Use these multipliers to the unfactored certificated (AFM) landing distances when advisory data from the manufacturer or performance provider is not available.

Braking Action	Runway Condition Code						
	6 (Dry)	5 Grooved/ PFC Good	5 Smooth Good	4 Good to Medium	3 Medium	2 Medium to Poor	1 Poor
Turbojet, No Reverse	1.67	2.3	2.6	2.8	3.2	4.0	5.1
Turbojet, With Reverse	1.67	1.92	2.2	2.3	2.5	2.9	3.4
Turboprop *	1.67	1.92	2.0	2.2	2.4	2.7	2.9
Reciprocating	1.67	2.3	2.6	2.8	3.2	4.0	5.1

* These LDFs apply only to turboprops where the AFM provides for a landing distance credit for the use of ground idle power lever position. Turboprops without this credit should use the Turbojet, No Reverse LDFs.

PLAN & DISCUSSION POINTS

- **Arrival**: Instrument Arrival Review, Landing Runway, Transition to Approach, Safe Altitudes, Alternate Fuel
- **IFR Approach**: Type, Minimum Safe Altitude, Frequency, Course, Transition Altitudes, Minimums, Lighting, Missed Approach
- **VFR Approach**: Electronic Approach Guidance, Traffic Pattern, Pattern Altitude, Minimum Safe Altitude, Missed Approach
- **Circling Considerations**: Aircraft Configuration, Speed, Wind, Leaving Minimum Descent Altitude, Protected Area, Obstacles, Missed Approach
- **Configuration**: Autopilot, Autothrottles, APU, Ice Protection, Ignition, Autobrakes, Temperature Compensation, Heads Up Display / Enhanced Vision System setup
- **Speeds**: VREF, Target Speed, Additions, Gust and/or Icing Corrections
- **Performance**: Touchdown Point, Crosswind / Tailwind, Available Landing Distance, Go-Around, EMAS
- **Taxi**: Runway exit, Follow Me, FBO, Route, Hot Spots, Obstacles, Snow Banks

QUESTIONS

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ABOUT NBAA

Founded in 1947 and based in Washington, DC, the National Business Aviation Association (NBAA) is the leading organization for companies that rely on general aviation aircraft to help make their businesses more efficient, productive and successful. Contact NBAA at 800-FYI-NBAA or info@nbaa.org. Not a member? Join today by visiting **nbaa.org/join**.