

TransNorthern Aviation
Merlin IIIB Maneuvers



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EFFECTIVE PAGES

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FAA Initial Approval, Expiration 3/31/2026

Office AL03

Effective Date 3/7/2024

James Howery, POI

USE OF THE MANEUVERS GUIDE

The flight maneuvers contained herein are designed to support the flight training curriculum segment. The procedures established for each maneuver are designed to standardize company flight training.

All crewmembers are expected to demonstrate knowledge and proficiency in each maneuver (both ground & flight) listed in the flight training curriculum segment in accordance with the standards set forth in the applicable airman certification standards guide. While TransNorthern LLC recognizes standards for operating the aircraft, we also recognize our diverse operating environment may require the pilot to use judgement in determining the proper operational criteria for a given situation.

Instructors and check airman will carry a current copy of the ATP (FAA-S-ACS-11), Commercial Pilot (FAA-S-ACS-7A), or Instrument Rating (FAA-S-ACS-8B) Airman Certification Standards as applicable, when conducting training & testing.

These flight training maneuvers do not replace the aircraft performance and operating limitations published in the Merlin IIIB AFM. Listed Speeds may be confirmed by consulting the Merlin IIIB AFM.

Each flight training session is to be preceded and followed by an instructor briefing and debriefing. All inflight maneuvers should be completed above 3,000' AGL and the pilot and instructor will maintain external vigilance and perform clearing turns prior to initiating the maneuver. Instructors will emphasize use of appropriate checklists and single or multi-crewmember resource management.

MERLIN IIIB OPERATIONAL SPEEDS (KIAS) (Training Weights)

V _X	105	Two Engine Best Angle of Climb Speed
V _{YSE}	116	Single Engine Best Rate of Climb Speed (Blue Line)
V _R	107	Ref AFM page 5-14 figure V-12
V _Y	139	Two Engine Best Rate of Climb Speed
	165	Cruise Climb Speed
	150	Recommended Approach Speed (see notes)
	20	Demonstrated Crosswind

TWO ENGINE BEST ANGLE OF CLIMB SPEEDS V _X	
The two-engine best angle of climb speed, V _X , is limited by V _{MCA} (107 KCAS, 105 KIAS) at all altitudes from sea level through 12,000 feet on cold days.	
Use 105 KIAS for V _X at all gross weights.	

From AFM

MERLIN IIIB LIMITATION SPEEDS (KIAS)

V _{MC}	105	Minimum Single Engine Control Speed (Red Line)
V _{FE}	212	Flaps Take Off (9 ⁰)
	177	Flaps 1/2 (18 ⁰)
	153	Flaps Full (36 ⁰)
V _{LO}	173	Landing Gear - Maximum Operating Speed
V _{LE}	173	Landing Gear - Maximum Extended Speed
V _A	190	Maneuvering Speed
V _{MO}	261	Max Operating Speed (SL to 24,000 FT)

TWO ENGINE BEST RATE OF CLIMB SPEEDS V _Y (KIAS)			
Pressure Altitude (Feet)	GROSS WEIGHT (Pounds)		
	8,500	10,500	12,500
S.L.	138	139	141
5,000	131	134	137
10,000	125	129	133
15,000	119	124	129
20,000	113	119	125
25,000	108	114	121

(24,000 thru 31,000 decreases by 5 knots per 1,000' above 24,000')

Notes:

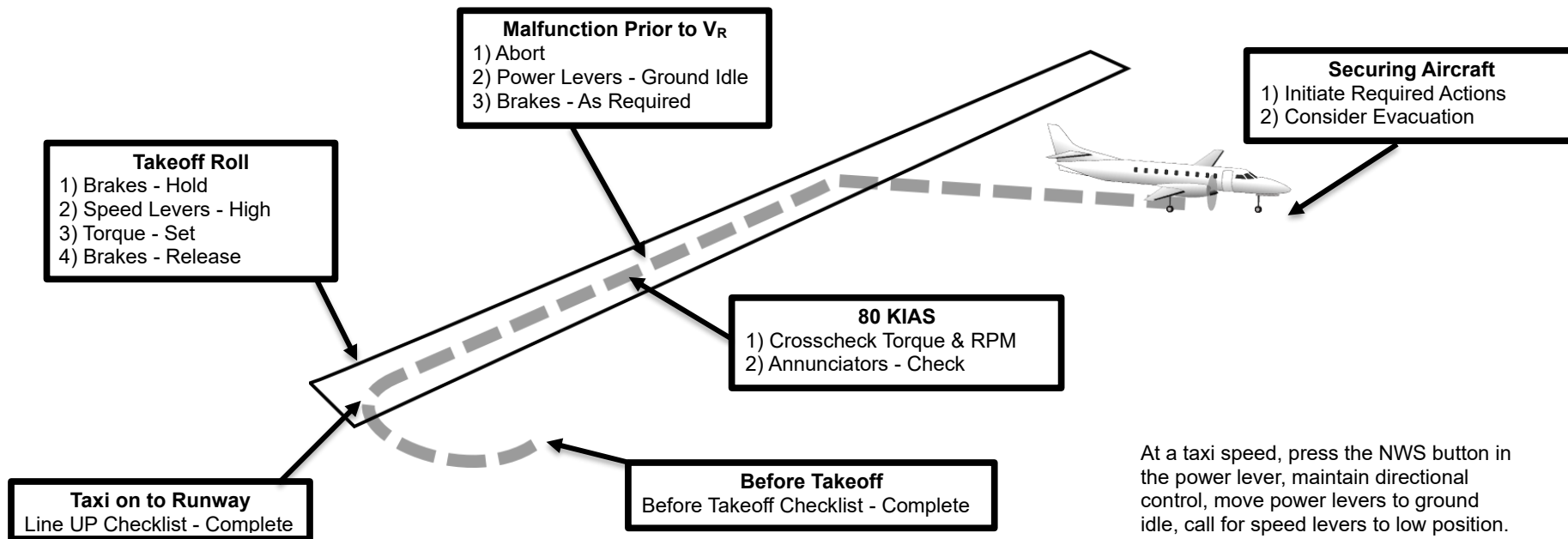
Company policy is to fly approaches at 150 KIAS (ILS, Non-Precision, Circling, Single Engine, No Flaps etc.) until final approach point and then reducing to 140 KIAS, reducing to V_{REF} + 10 when landing is assured and crossing threshold at V_{REF}.

Appropriate Callouts by FP (Flying Pilot) and NFP (Non-Flying Pilot) are discussed during two pilot CRM (Crew Resource Management) and are not listed in these maneuvers.

Powerplant Failure - Before V_R

Conditions: Paved, Level, Dry Surface

Apply max brakes, reduce power levers to ground idle. Use rudder pedal pressure to maintain directional control. Use reverse if available, and directional control will not be compromised.

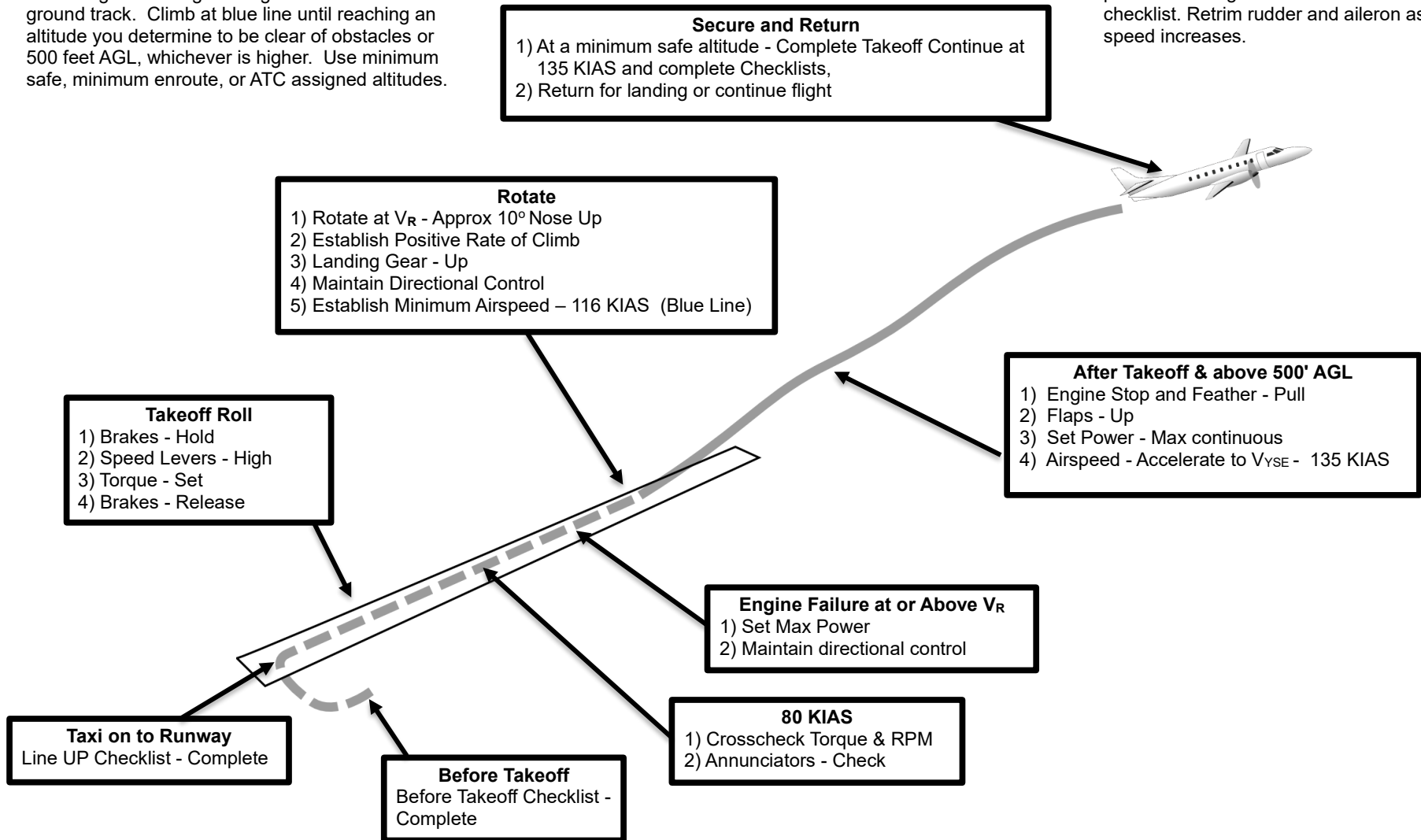


At a taxi speed, press the NWS button in the power lever, maintain directional control, move power levers to ground idle, call for speed levers to low position. Notify the tower and accomplish any other memory items as needed.

Powerplant Failure - After V_R
Conditions: Paved, Level, Dry Surface

Maintain directional control with rudder, rotate at V_R, and raise the gear with a positive rate of climb. Use the aileron to obtain a 5° bank, the ball half-way out of the cage into the good engine to maintain the ground track. Climb at blue line until reaching an altitude you determine to be clear of obstacles or 500 feet AGL, whichever is higher. Use minimum safe, minimum enroute, or ATC assigned altitudes.

At 500 feet AGL or clear of obstacles, perform the memory items. Accelerate to 120 KIAS and retract the flaps, then accelerate to 135 KIAS and perform the engine failure takeoff continued checklist. Retrim rudder and aileron as needed as speed increases.

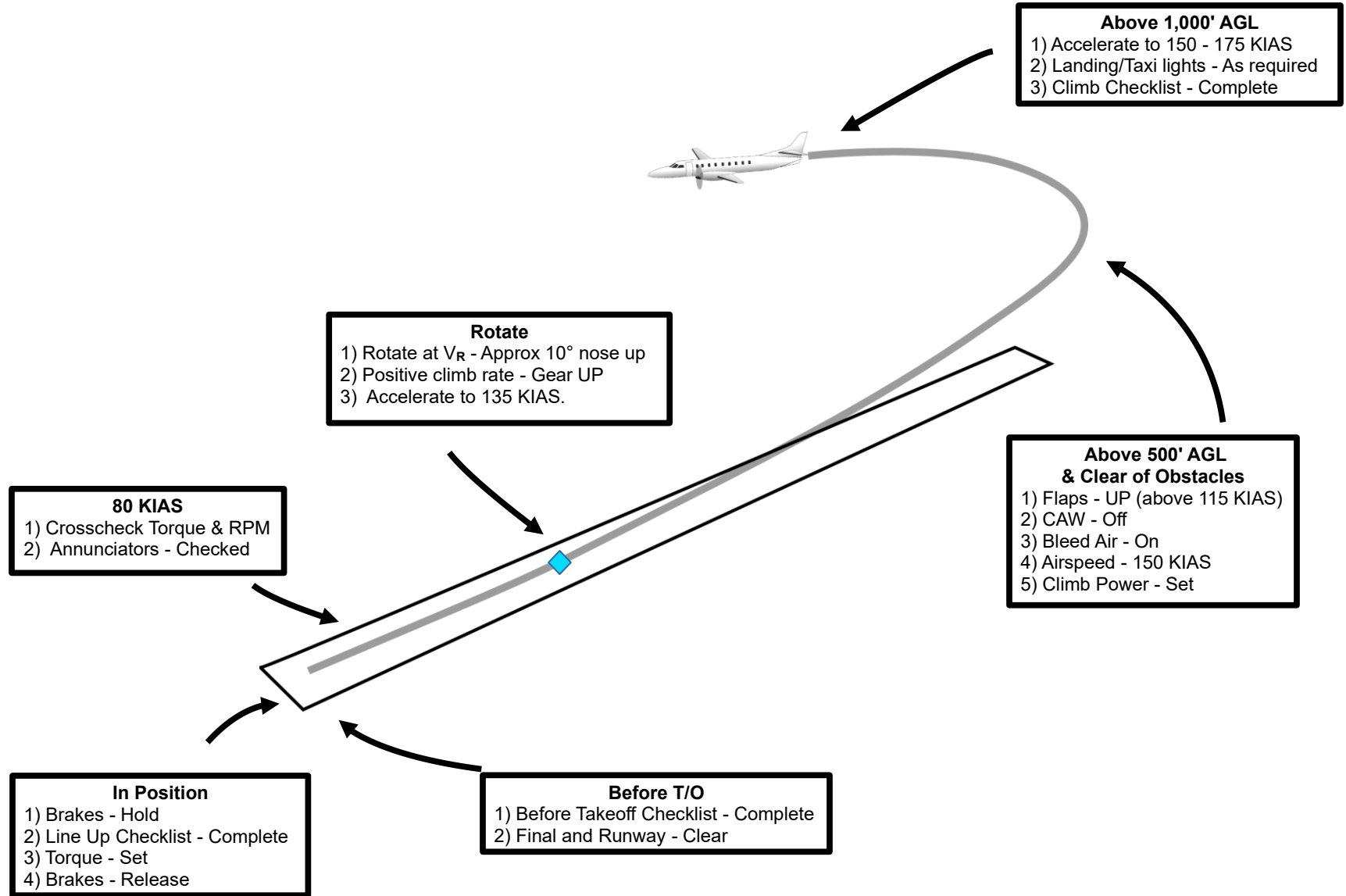


Notes:

V_{REF} speeds are determined during W&B computation.
V_R and V₁ are the same

Normal Takeoff and Departure – Flaps 1/4

Conditions: Paved, Level, Dry Surface



Notes:

Determine Short Field V_R and V_{50} speeds from AFM page 6-3.

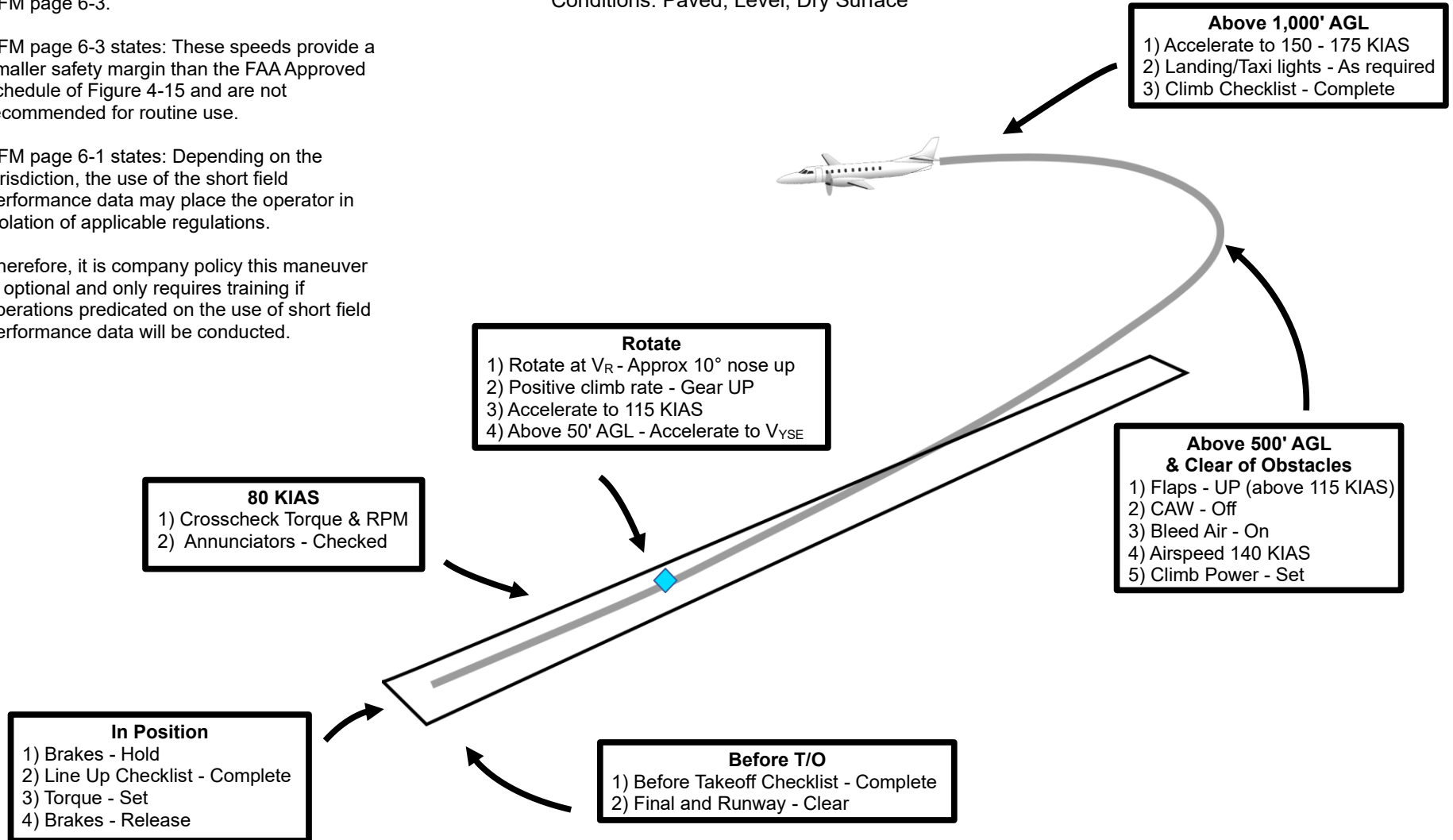
AFM page 6-3 states: These speeds provide a smaller safety margin than the FAA Approved schedule of Figure 4-15 and are not recommended for routine use.

AFM page 6-1 states: Depending on the jurisdiction, the use of the short field performance data may place the operator in violation of applicable regulations.

Therefore, it is company policy this maneuver is optional and only requires training if operations predicated on the use of short field performance data will be conducted.

Short Field Takeoff and Departure – Flaps 1/4

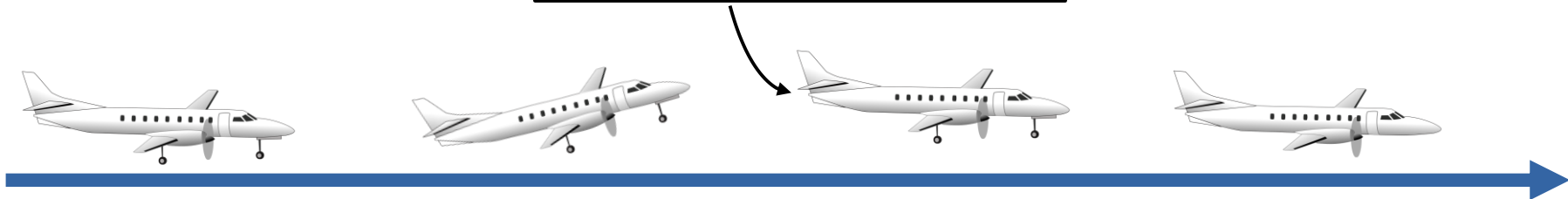
Conditions: Paved, Level, Dry Surface



Takeoff Configuration Stall

Notes: Complete maneuver above 3000' AGL

- At Stall Indication**
- 1) Pitch - Reduce to eliminate stall Indication and simultaneously level Wings (trim as required)
 - 2) Power - Set Maximum
 - 3) Airspeed - Increasing
 - 4) Flaps - Up (above 115 KIAS)
 - 5) Gear - Up after positive rate of climb is obtained.



- 1) Speed Levers - High
- 2) Prop Sync - Takeoff & Landing
- 3) A/P - Off
- 4) Gear - Down
- 5) Flaps - Set 1/4 (below 212 KIAS)
- 6) Power Levers - 20% Torque
- 7) Speed - slow to 120 KIAS

- 1) Roll into a 20° bank
- 2) Increase pitch to 15°
- 3) Power Levers - 40% Torque

- 1) Return to desired speed and altitude
- 2) Power - As required

Landing Configuration Stall

Note: Complete maneuver at a minimum of 3000' AGL

- At Stall Indication**
- 1) Pitch - Reduce to eliminate stall indication and simultaneously level wings (trim as required)
 - 2) Power - Set Maximum
 - 3) Flaps - Retract to 1/2
 - 4) Positive Climb Rate - Gear UP
 - 5) 115 KIAS - Flaps UP

Caution:
To prevent secondary stall use care when retracting flaps to 1/2



- 1) Speed Levers - High
- 2) Prop Sync - Takeoff & Landing
- 3) A/P - Off
- 4) Gear - Down (below 173 KIAS)
- 5) Flaps - Set Full (below 153 KIAS)
- 6) Power Levers - 20% Torque
- 7) Maintain HDG and Altitude

- 1) Return to desired speed and altitude
- 2) Power - As required

Clean Configuration Stall – Autopilot On

Notes:

Complete maneuver above 3000' AGL

Aircraft will not stall with autopilot engaged but will descend at speed above stall when autopilot pitch servo reaches travel limit. Disengage autopilot and initiate recovery at first indication of altitude loss.

- At Stall Indication (See Notes)**
- 1) Autopilot - Disengage
 - 2) Pitch - Reduce to eliminate stall Indication and simultaneously level Wings (trim as required)
 - 3) Power - Set Maximum
 - 4) Airspeed - Increasing



- 1) Speed Levers - High
- 2) Prop Sync - Takeoff & Landing
- 3) A/P - ON (HDG and Altitude Hold)
- 4) Power Levers - 10% Torque
- 5) Power Levers - Flight Idle
- 6) Gear Horn - Silence

- 1) Recover to desired speed and altitude
- 2) Power - As required

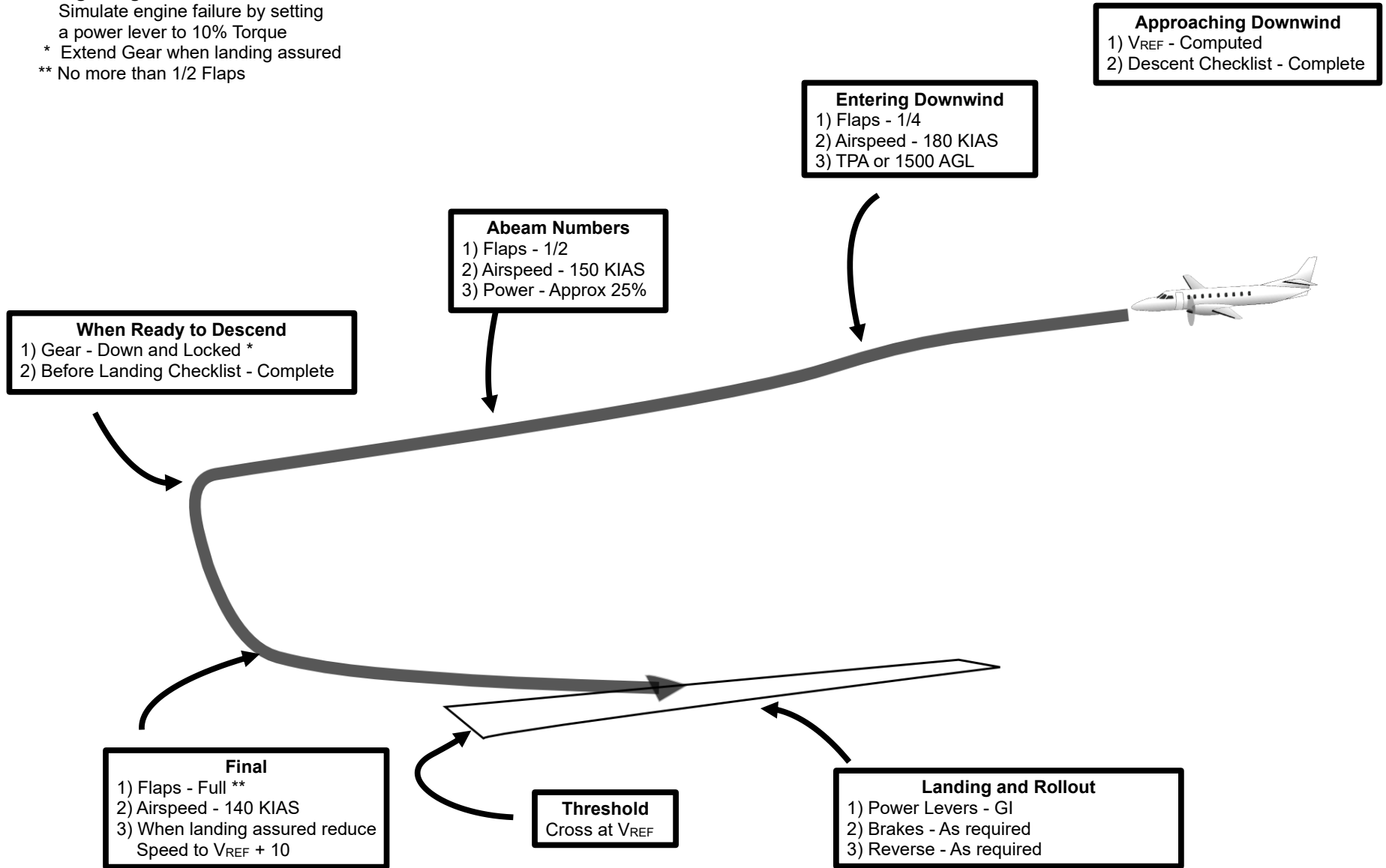
Visual Approach - Normal/Single Engine

Single Engine Procedures:

Simulate engine failure by setting a power lever to 10% Torque

* Extend Gear when landing assured

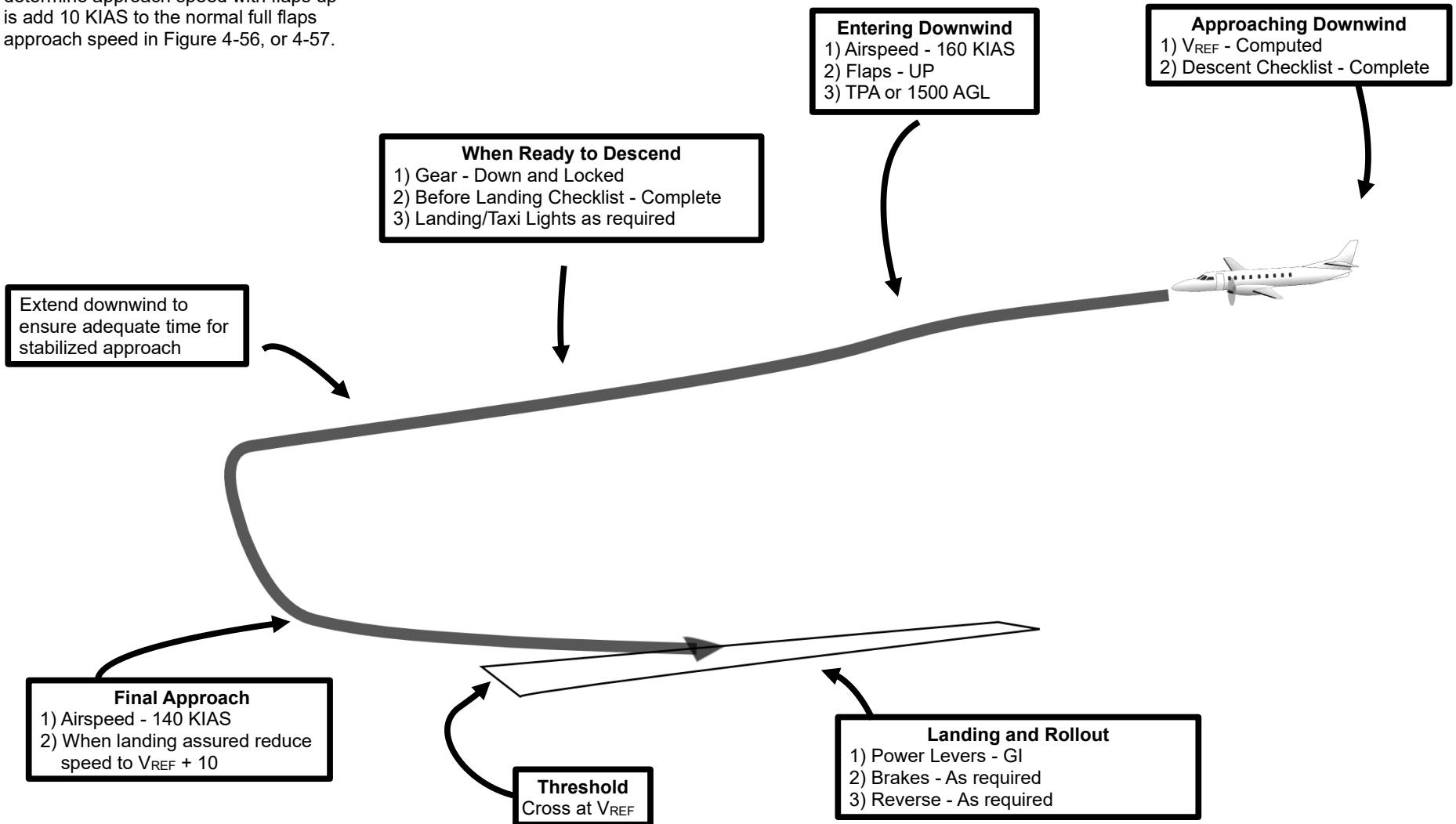
** No more than 1/2 Flaps



Visual Approach – Flap Malfunction (No Flaps)

Note:

Approach speeds with partial or no flaps are located on AFM page 3-18. An acceptable, alternate procedure to determine approach speed with flaps up is add 10 KIAS to the normal full flaps approach speed in Figure 4-56, or 4-57.



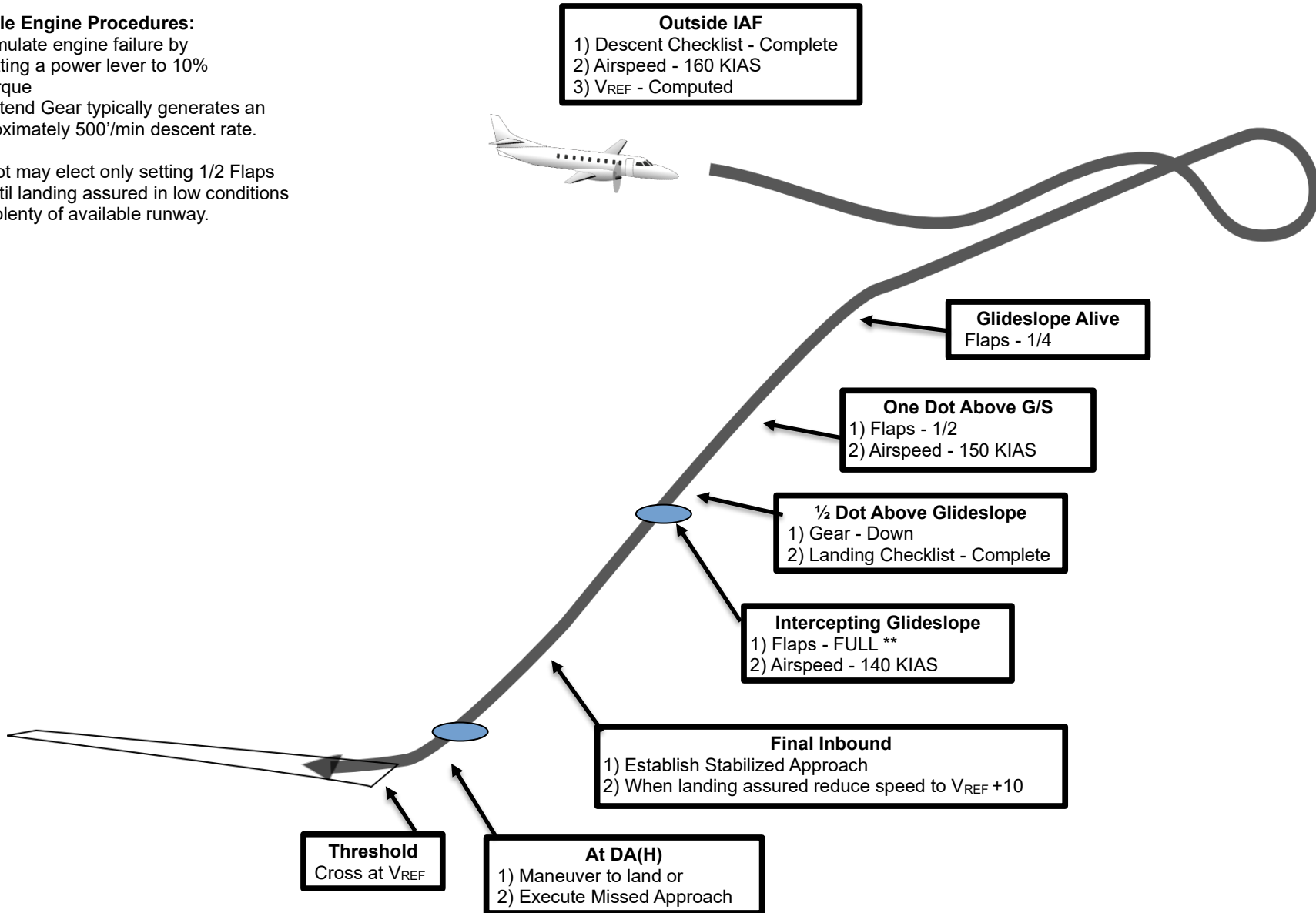
ILS / LPV / VNAV Approach - Normal and Single Engine

Single Engine Procedures:

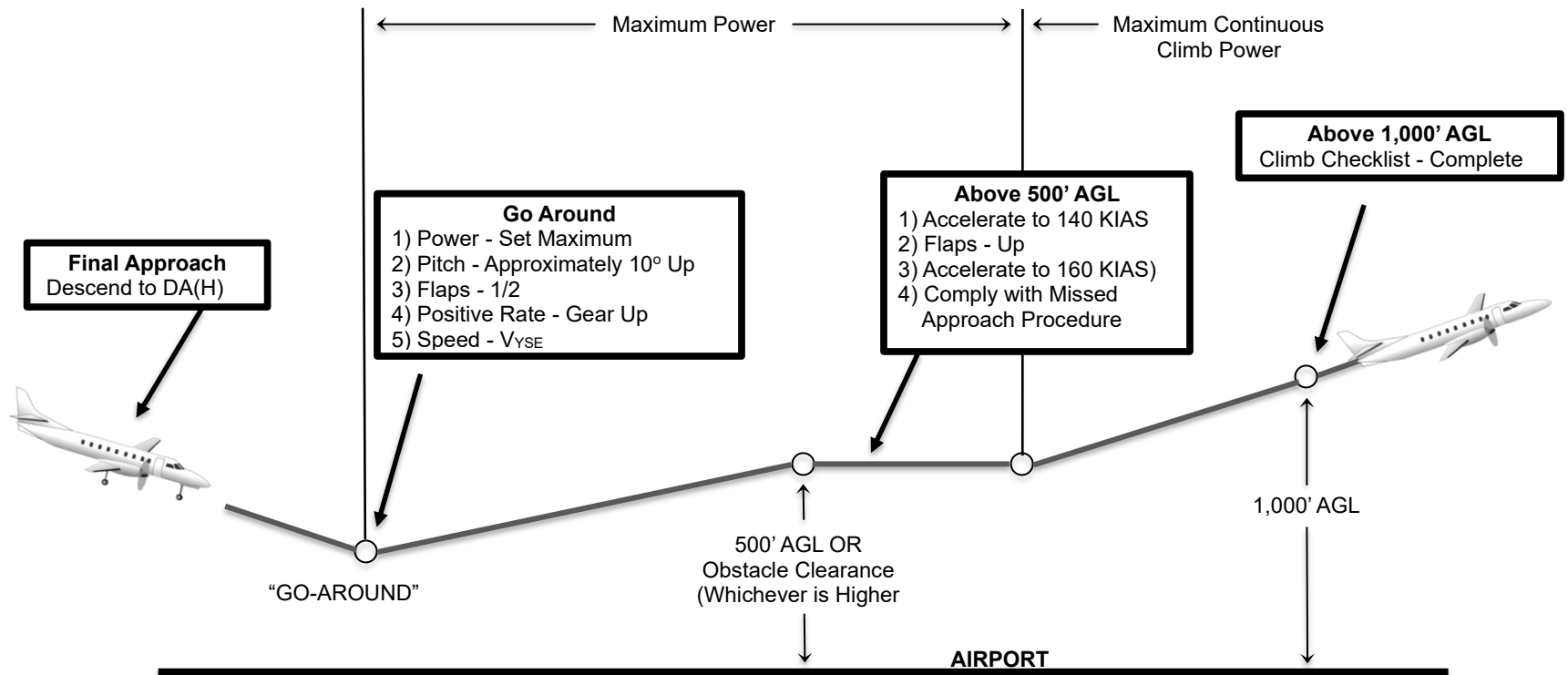
Simulate engine failure by setting a power lever to 10% Torque

* Extend Gear typically generates an approximately 500'/min descent rate.

** Pilot may elect only setting 1/2 Flaps Until landing assured in low conditions with plenty of available runway.



Missed Approach – From Precision Approach



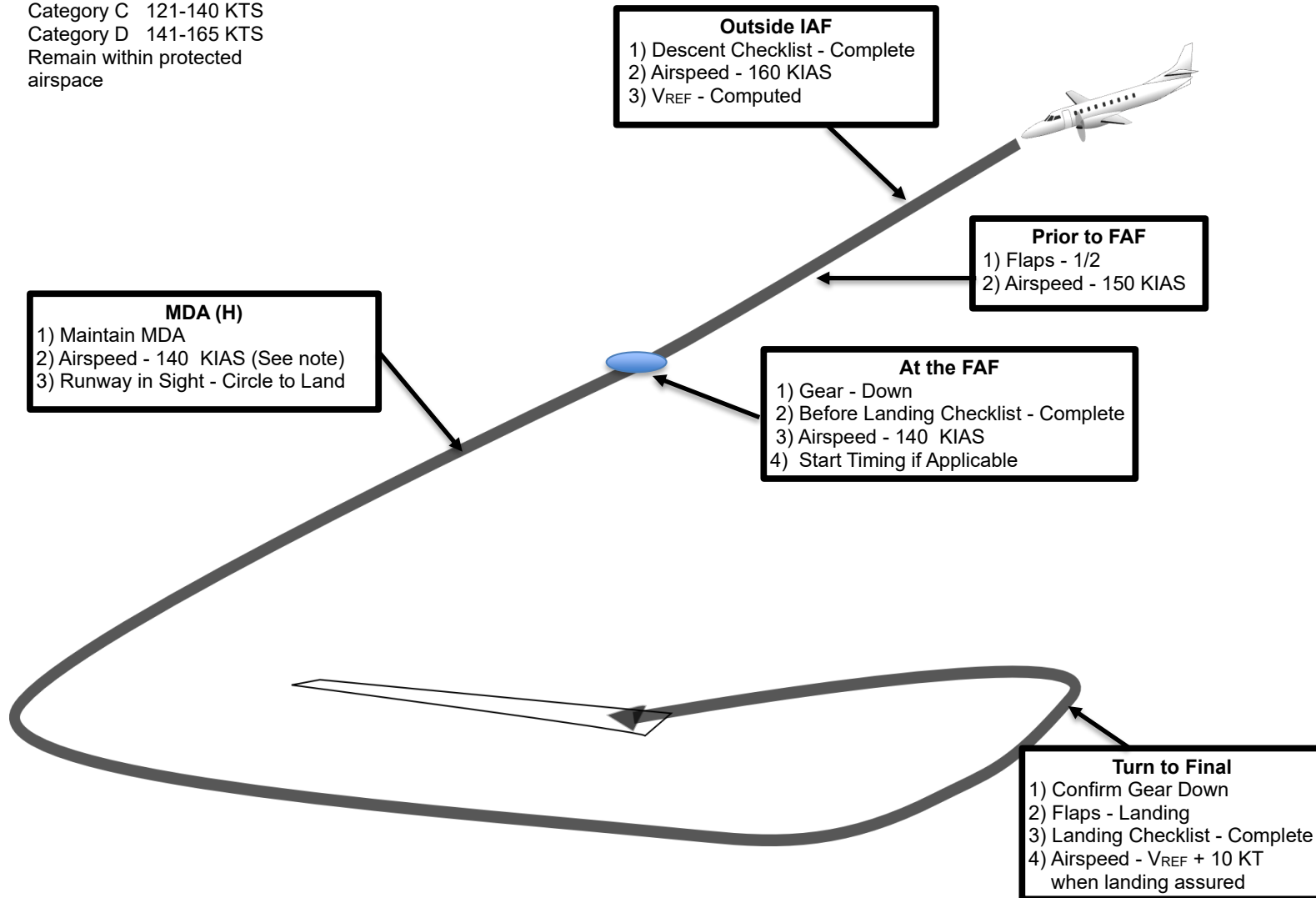
Circle to Land Approach

Note: Maneuvering Speeds

Category C 121-140 KTS

Category D 141-165 KTS

Remain within protected
airspace



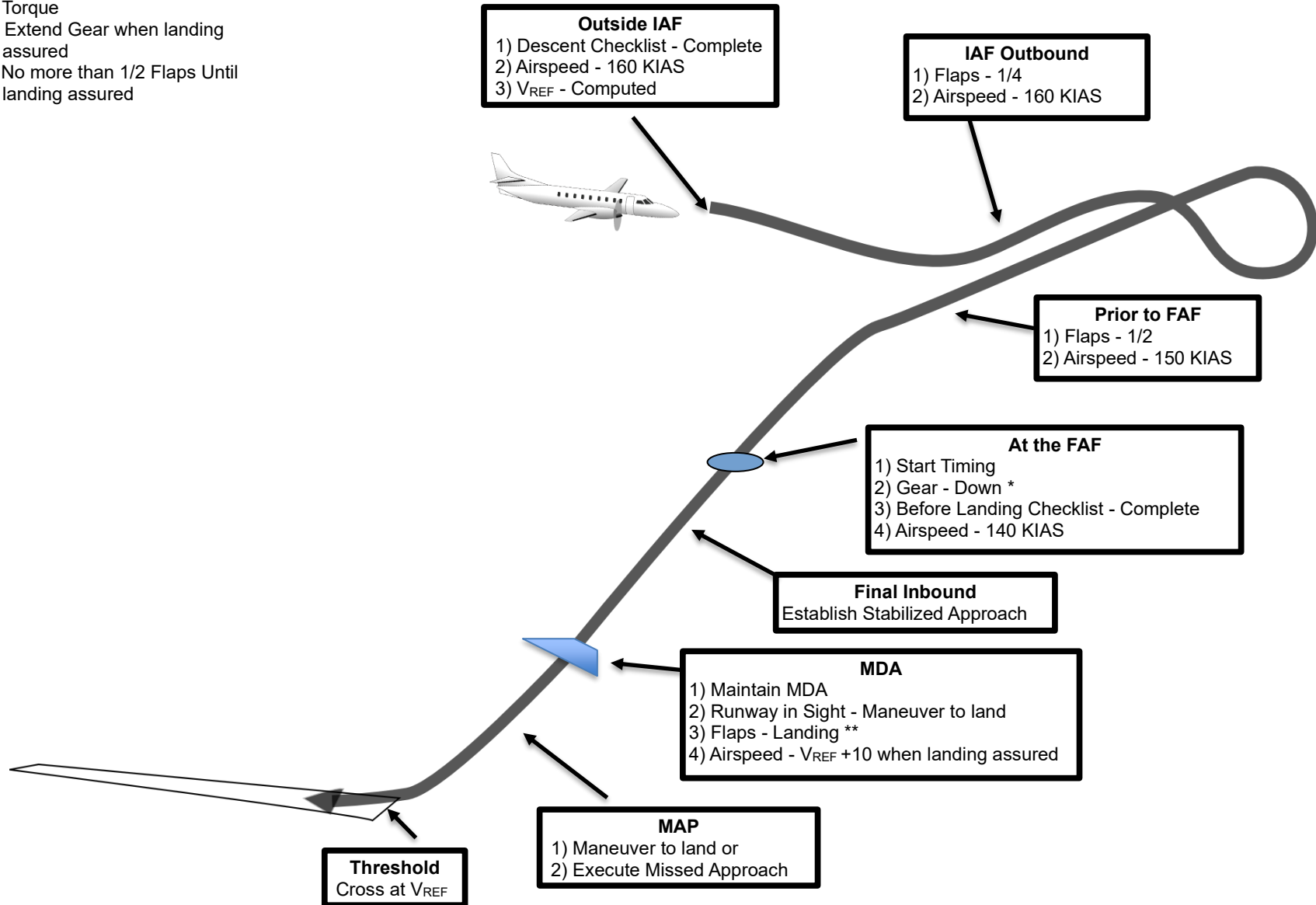
Non-Precision Approach - Normal and Single Engine

Single Engine Procedures:

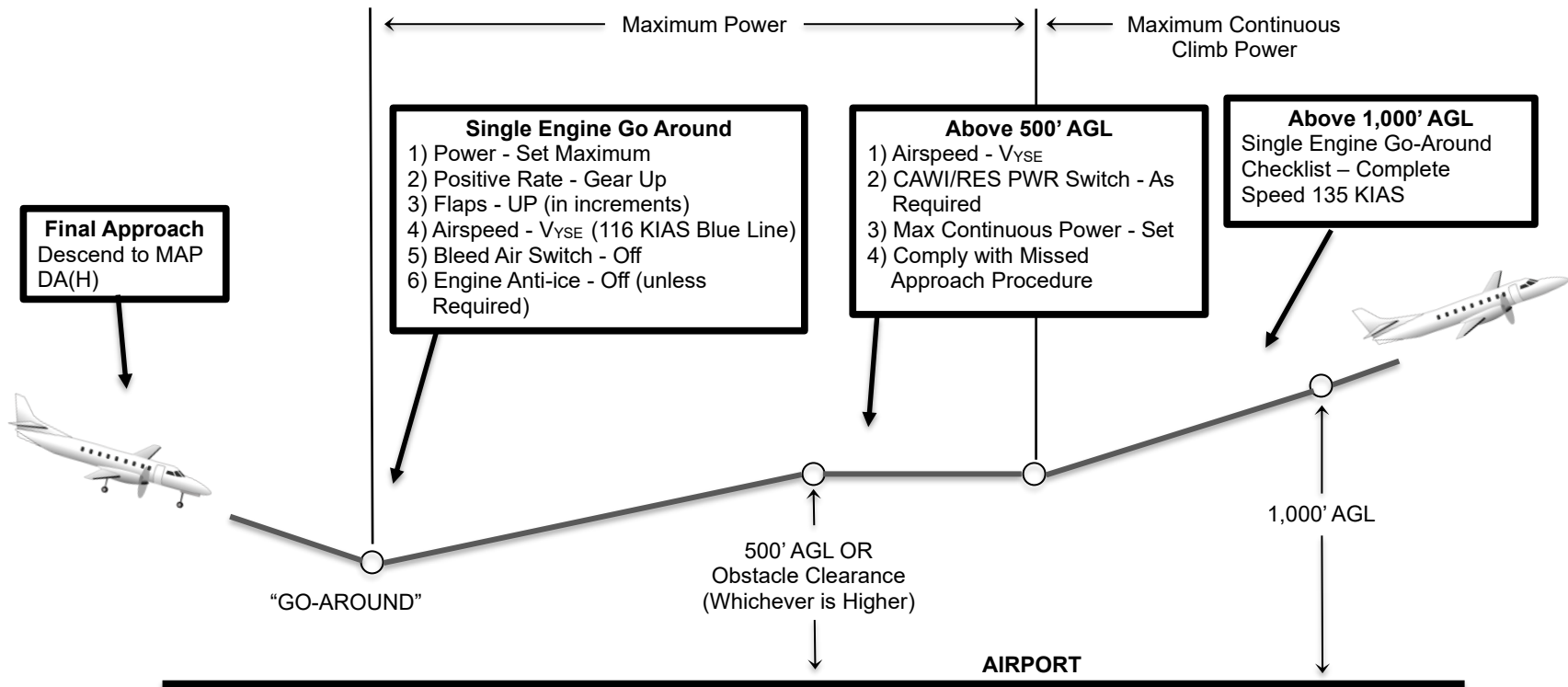
Simulate engine failure by setting a power lever to 10% Torque

* Extend Gear when landing assured

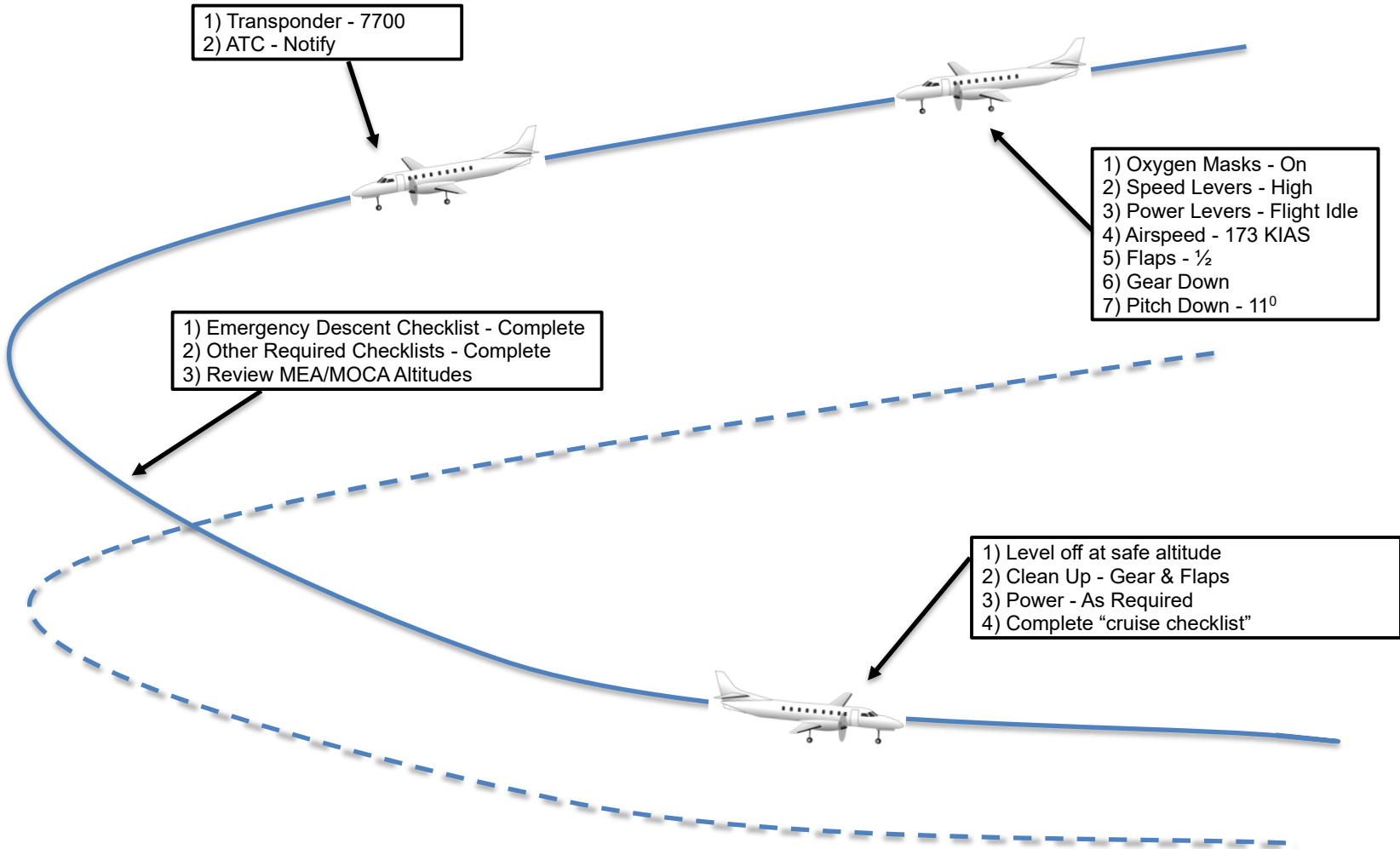
** No more than 1/2 Flaps Until landing assured



Missed Approach – One Engine Inoperative



Emergency Descent



Steep Turn

NOTE: Confirm before initiating the maneuver standard to use:

Commercial standards - coordinated 360° steep turn with at least a 50° bank, followed by a 360° steep turn in the opposite direction.

ATP standards - Establish at least a 45° bank solely by reference to instruments and make a coordinated steep turn of at least 180°

