CESSNA SKYHAWK C-172 SP
Standard Operating Procedures

Rev [6.0]

CONTENTS

A-Z

DEFINITIONS

Flags: Any annunciator lights, sign of a malfunction, concern, red X's, instrument Loss of Integrity, mechanical problems etc...

Gust factor: The value in "kt" added to your approach speed in order to account for the gusts.

Profile: SOPs are also known as "profiles". Judging if you are on "profile" is judging the relative position of the airplane in relation to our SOPs.

RTB: Retun To Base.

TDP: Touch Down Point.

TOD: Top Of Descent.

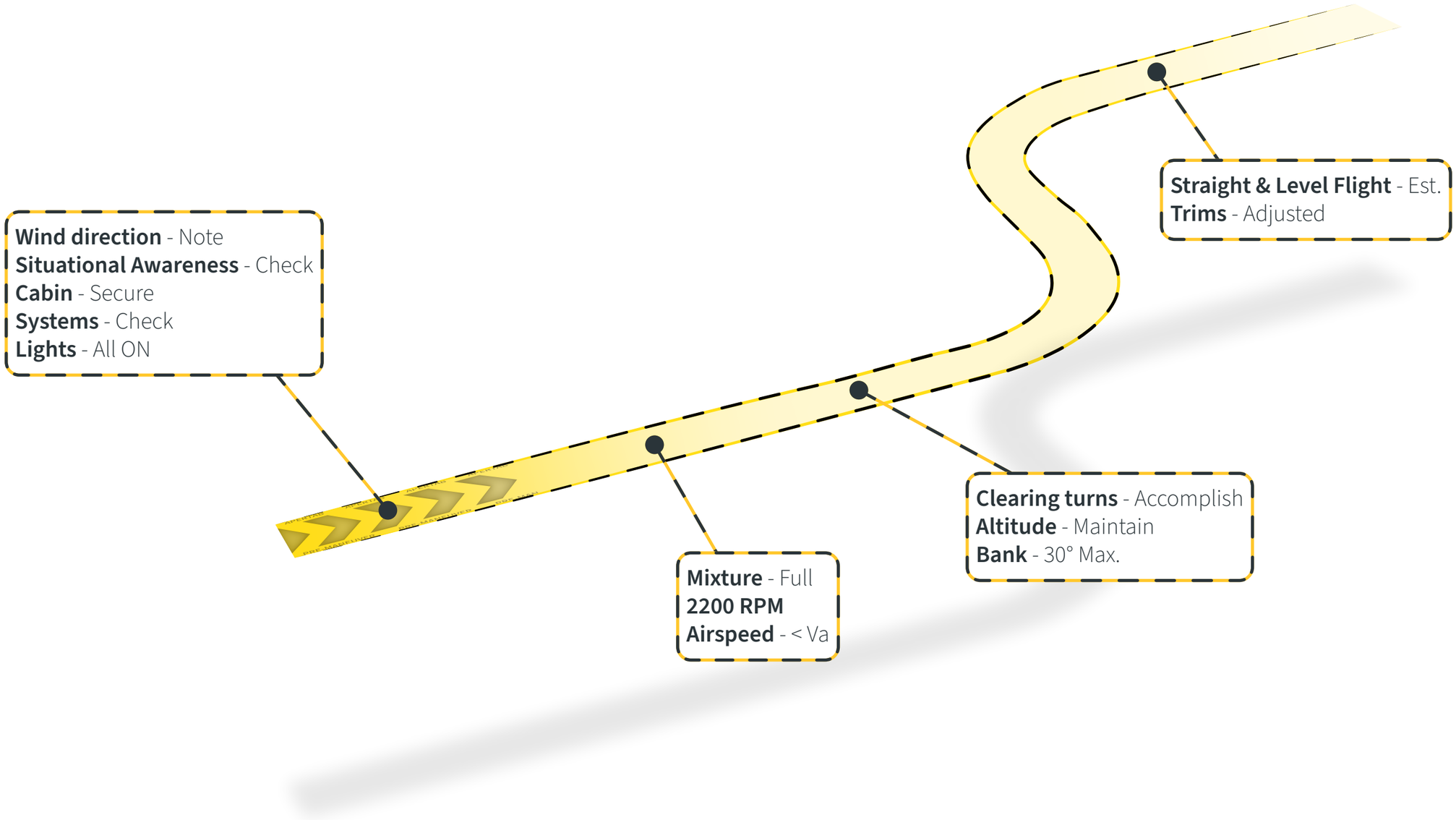
Vref: Reference speed chosen by the pilot and/or manufacturer for the approach and landing based on airplane configuration and current environmental conditions.

CESSNA SKYHAWK C-172 SP

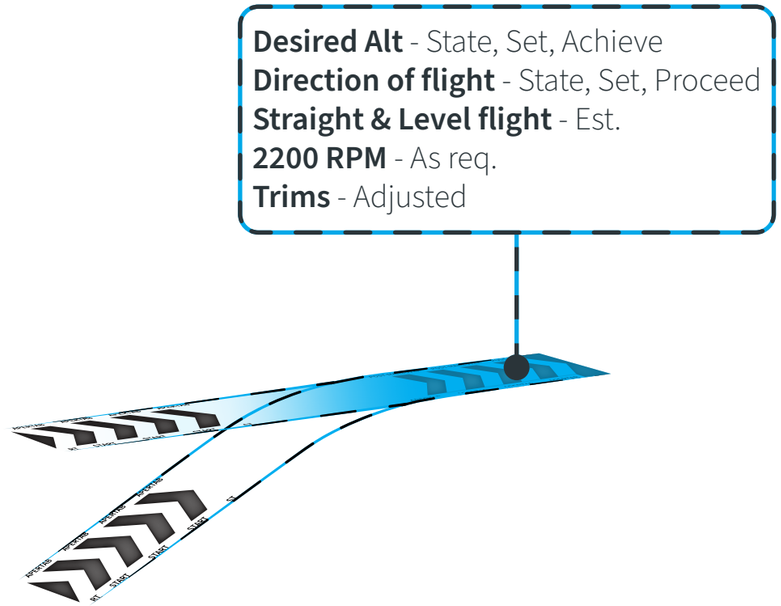
Part I: General

Rev [6.0]

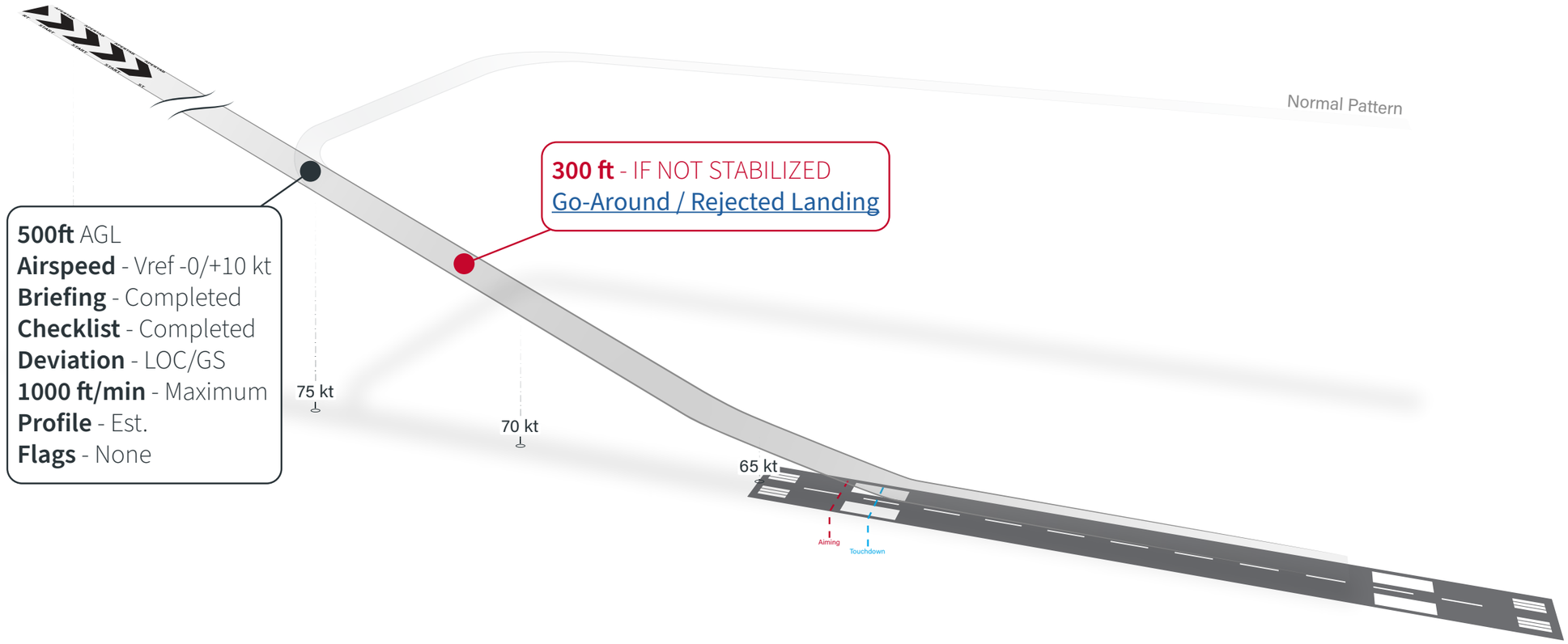
PRE MANEUVER / CLEARING TURN



POST MANEUVER



STABILIZED APPROACH



DESCENT RULE OF THUMB

The "3 to 1" rule

Step 1: What distance from a fix do I need to start my descent?

Dist (NM) = (Altitude to loose) / 3

Scenario: You are flying a Cross Country from KSRQ to KSEF at 5,500ft. You want to overfly KSEF at 2,500ft to check for wind socks and maneuver for the correct downwind.
You have to loose 5,500ft - 2,500ft = 3,000ft

Dist = 3,000 / 3
Dist = 1,000 NM

That is a lot of NM... remove the last two digits and see if it makes more sense?

Dist = 10.00 NM

There you have it! You need to leave 5,500ft to 2,100ft approximately 10.00 NM away from KSEF following a 3º descent angle.

- Proceed to Step 2 -

RPM, ft/min

Step 2: How to establish a 3º descent?

3º (ft/min) = 5 x (Ground Speed)

Scenario: You are on a long final showing on PAPI (3º) and the GPS reads a Ground Speed of 90kt.

3º (ft/min) = 5 x 90
3º (ft/min) = 450 ft/min
To make it easy, let's round it up: 500 ft/min

There you have it! You need to maintain approximatly 500 ft/min in order to keep a 3º descent angle and therefore stay on PAPI.

- Proceed to Step 3 -

3º Descent

Step 3: How to establish a XXX ft/min descent using RPMs?

-X00 RPM = -X00 ft/min

Scenario: You are in downwind doing touch and goes and showing 90kt Ground Speed. Abeam touch down point you want to establish a 3º descent. You know 3º descent at 90kt is approximately 500 ft/min.
From your current 2,200 RPM you need to remove the amount of ft/min you want to loose.

-500 RPM = -500 ft/min
2,200 - 500 = 1,700 RPM

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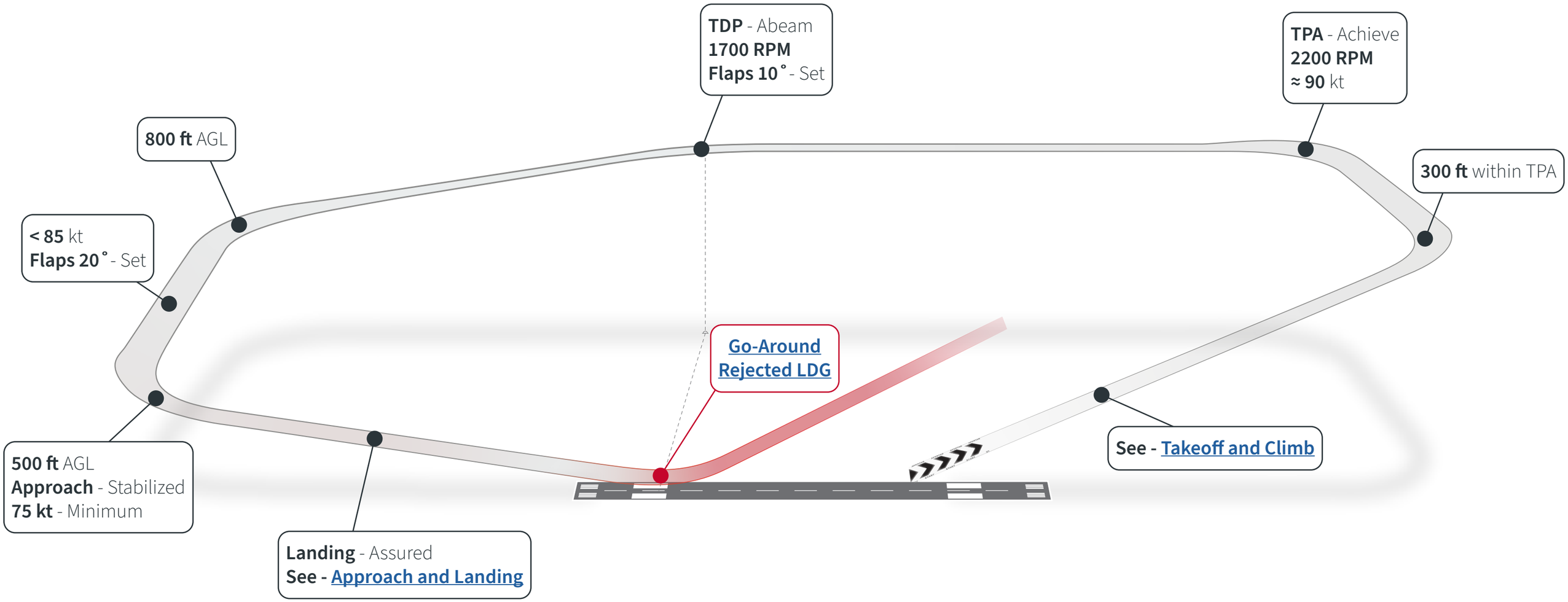
Part II: Takeoffs & Landings

Rev [6.0]

NORMAL PATTERN / GO AROUND



TAKEOFF AND CLIMB

Flaps 10˚ - Set
Throttle - Full
Engine gauges - Check
Wind direction - Note
Ailerons - Partially into wind

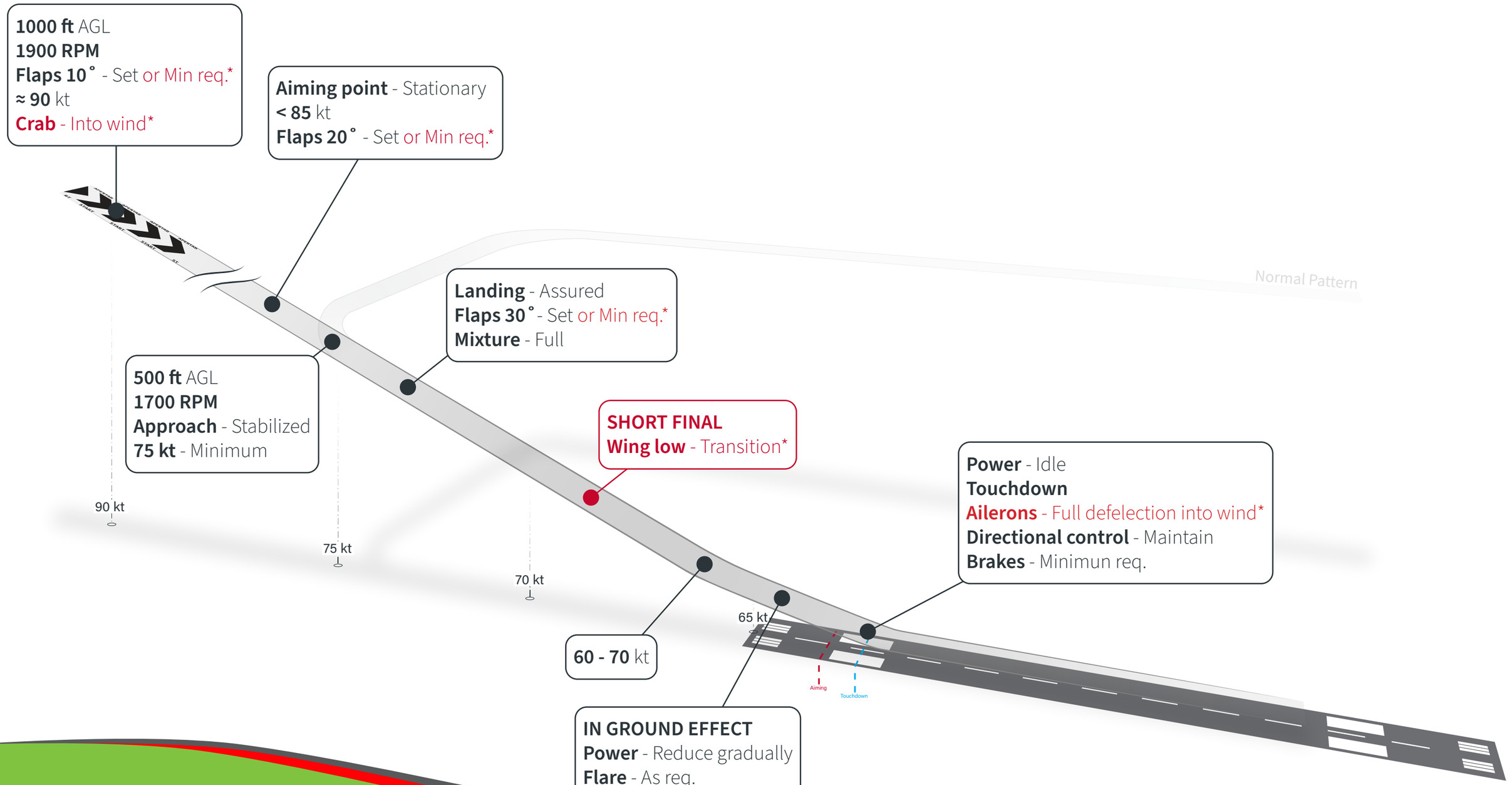
Vr > 55 kt
If strong crosswind
Rotate - Briskly as req.

Crab - Into wind
Pitch 7.5°/10° - Est.
Safe Alt - Est.
>65 kt
Flaps 0˚ - Set
Vy 74 kt

Altitude - Per AIM
HDG turn - Execute

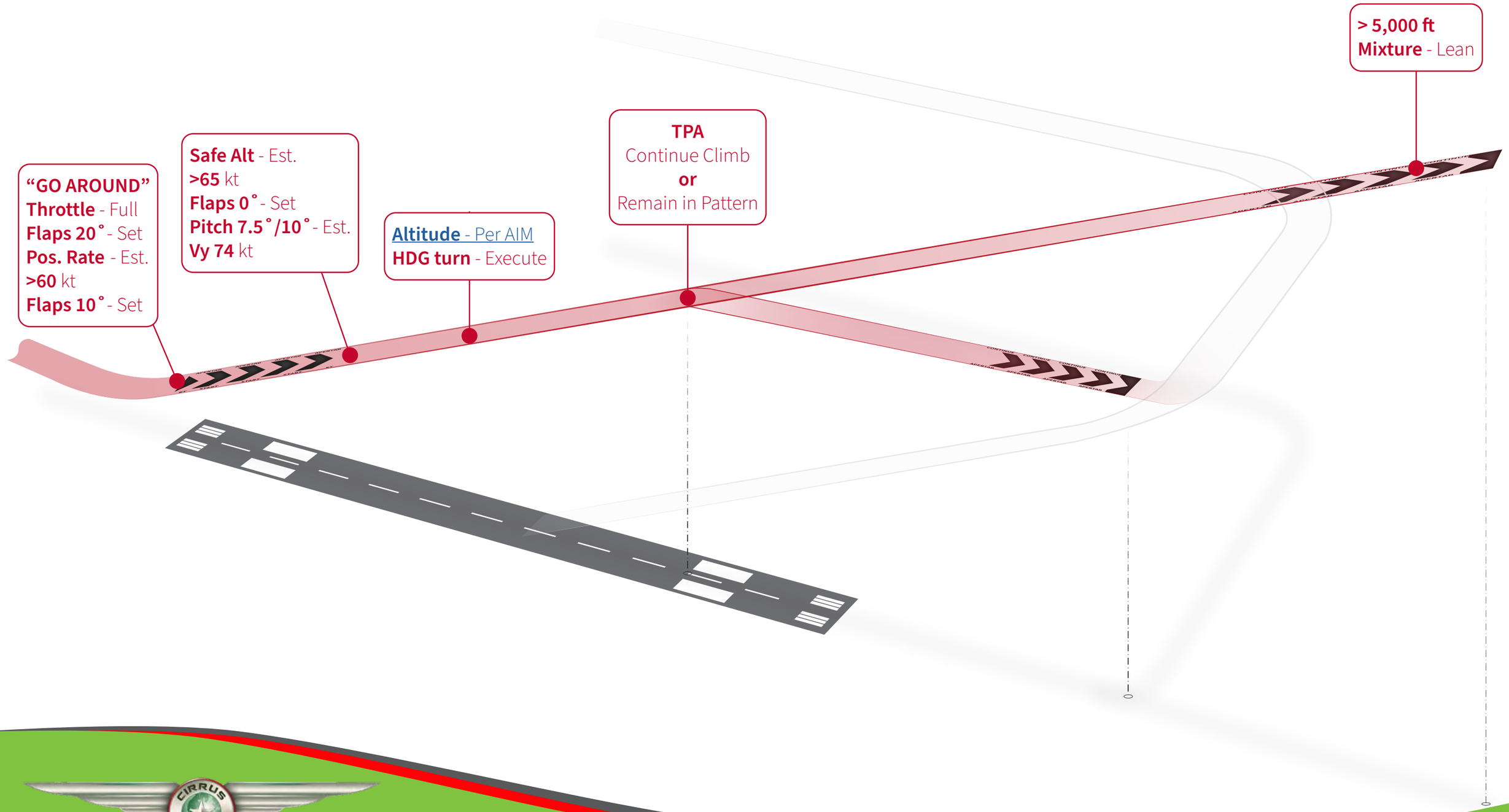
> 5,000 ft
Mixture - Lean

APPROACH AND LANDING



* When high cross wind or gusting conditions exist

GO AROUND / REJECTED LANDING



SHORT FIELD TAKEOFF AND CLIMB

Flaps 10˚ - Set
Brakes - Hold
Throttle - Full
Mixture - Rich
Engine gauges - Check
Wind direction - Note
Ailerons - partially into wind
Brakes - Release

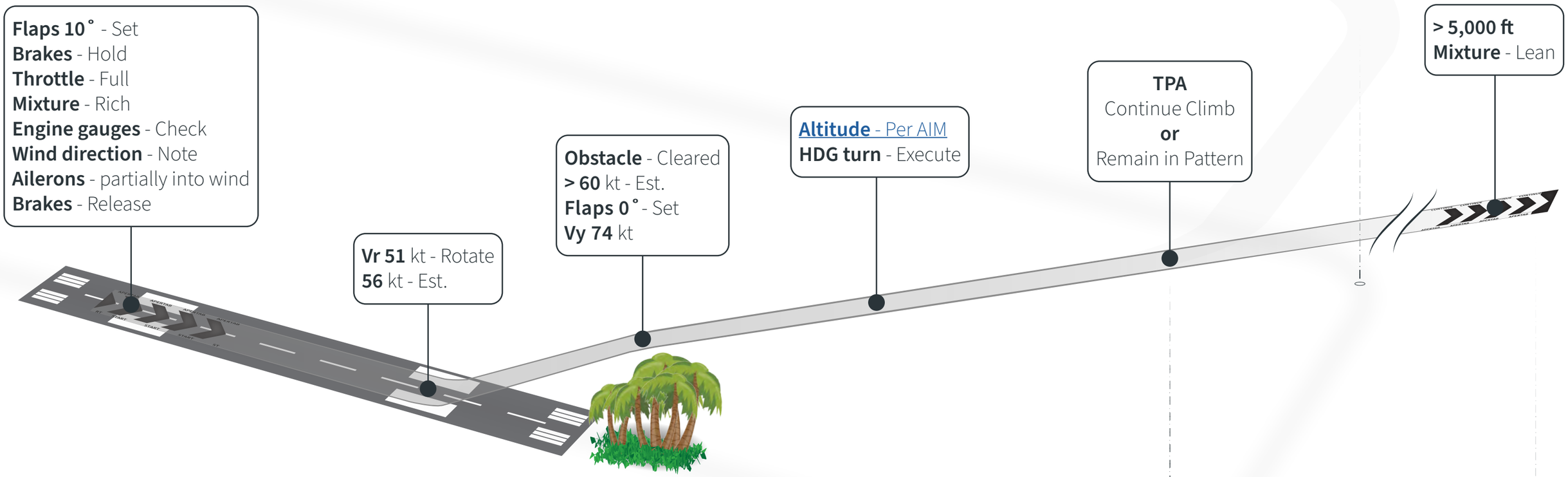
Vr 51 kt - Rotate
56 kt - Est.

Obstacle - Cleared
> 60 kt - Est.
Flaps 0˚ - Set
Vy 74 kt

Altitude - Per AIM
HDG turn - Execute

TPA
Continue Climb
or
Remain in Pattern

> 5,000 ft
Mixture - Lean



SHORT FIELD APPROACH AND LANDING

1000 ft AGL
1900 RPM
Flaps 10˚ - Set or Min req.*
≈ 90 kt
Crab - Into wind*

800 ft AGL
< 85 kt
Flaps 20˚ - Set

TDP - Abeam
1700 RPM
FLAPS 10˚ - Set

500 ft AGL
Approach - Stabilized
75 kt - Minimum

Aiming point - Stationary
< 85 kt
Flaps 20˚ - Set

90 kt

75 kt

Landing - Assured
Flaps 30˚ - Set
Mixture - Full

Obstacle - Cleared
61 kt
1700 RPM to Idle

Throttle - Idle
Touchdown
Flaps 0˚ - Set
Aero dynamic braking - Apply
Brakes - Apply Heavily*

Flare - As req.

* Simulated only for flight training purposes

SOFT FIELD TAKEOFF AND CLIMB

Elevator - Full nose UP
Flaps 10˚ - Set
Brakes - Released
Throttle - Full smoothly
Mixture - Rich
Engine gauges - Check
Elevator - Adjust

Rotate - ASAP
Gnd effect - Maintain

> 60 kt - Est.
Climb - Est.

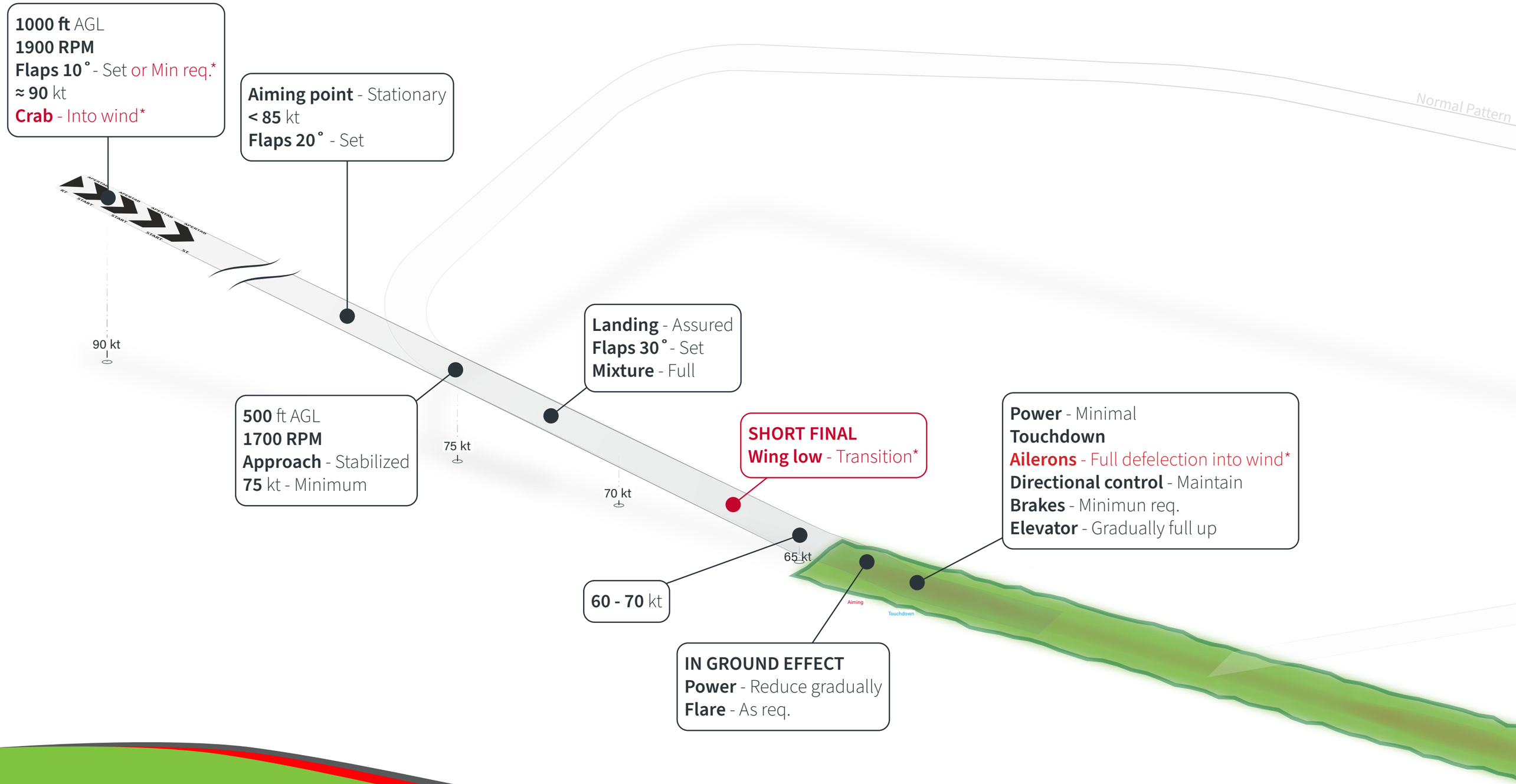
OUT OF GROUND EFFECT
Obstacle - Cleared (As req.)
Flaps 0˚ - Set
Vy 74 kt

Altitude - Per AIM
HDG turn - Execute

TPA
Continue Climb
or
Remain in Pattern

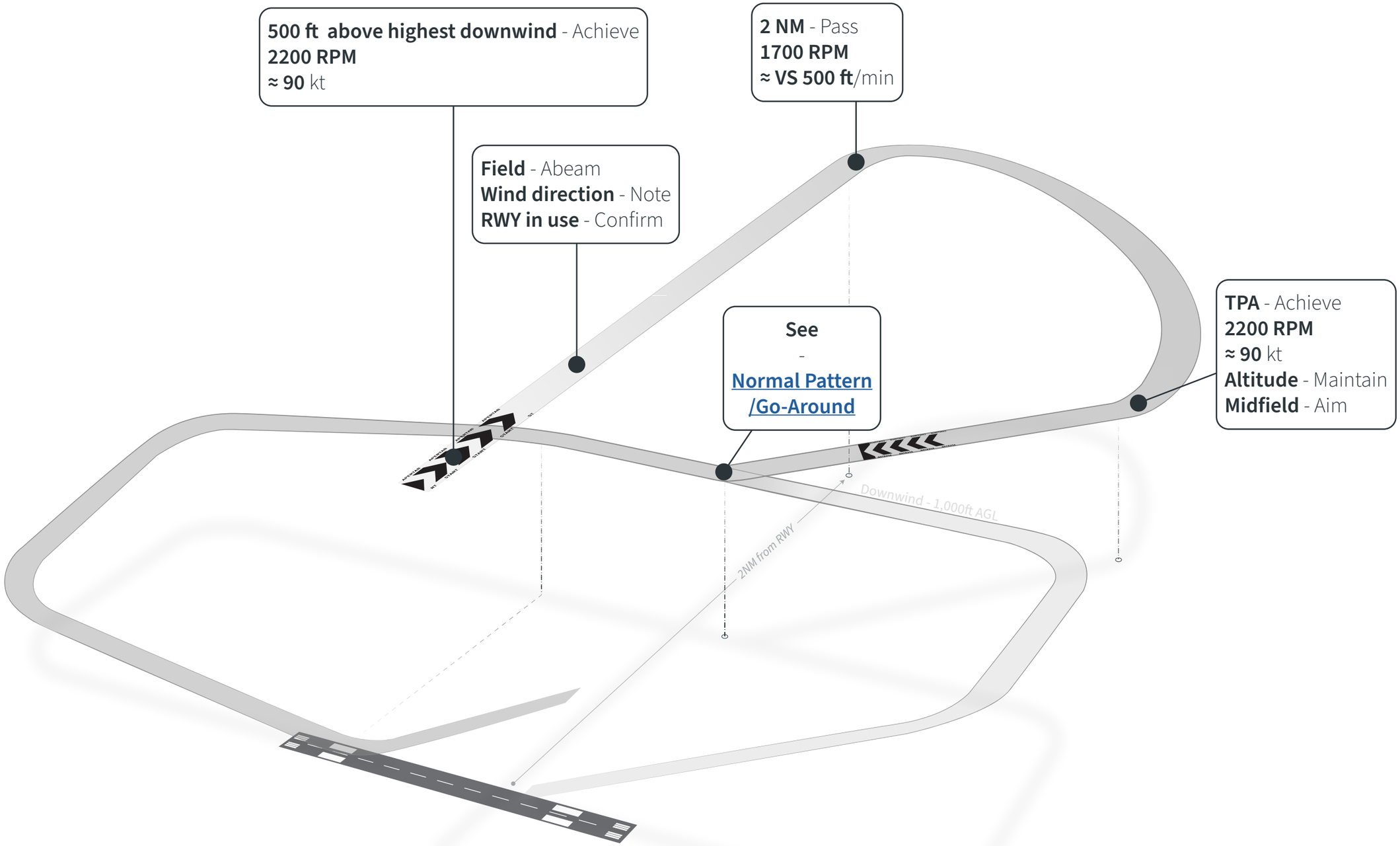
> 5,000 ft
Mixture - Lean

SOFT FIELD APPROACH AND LANDING

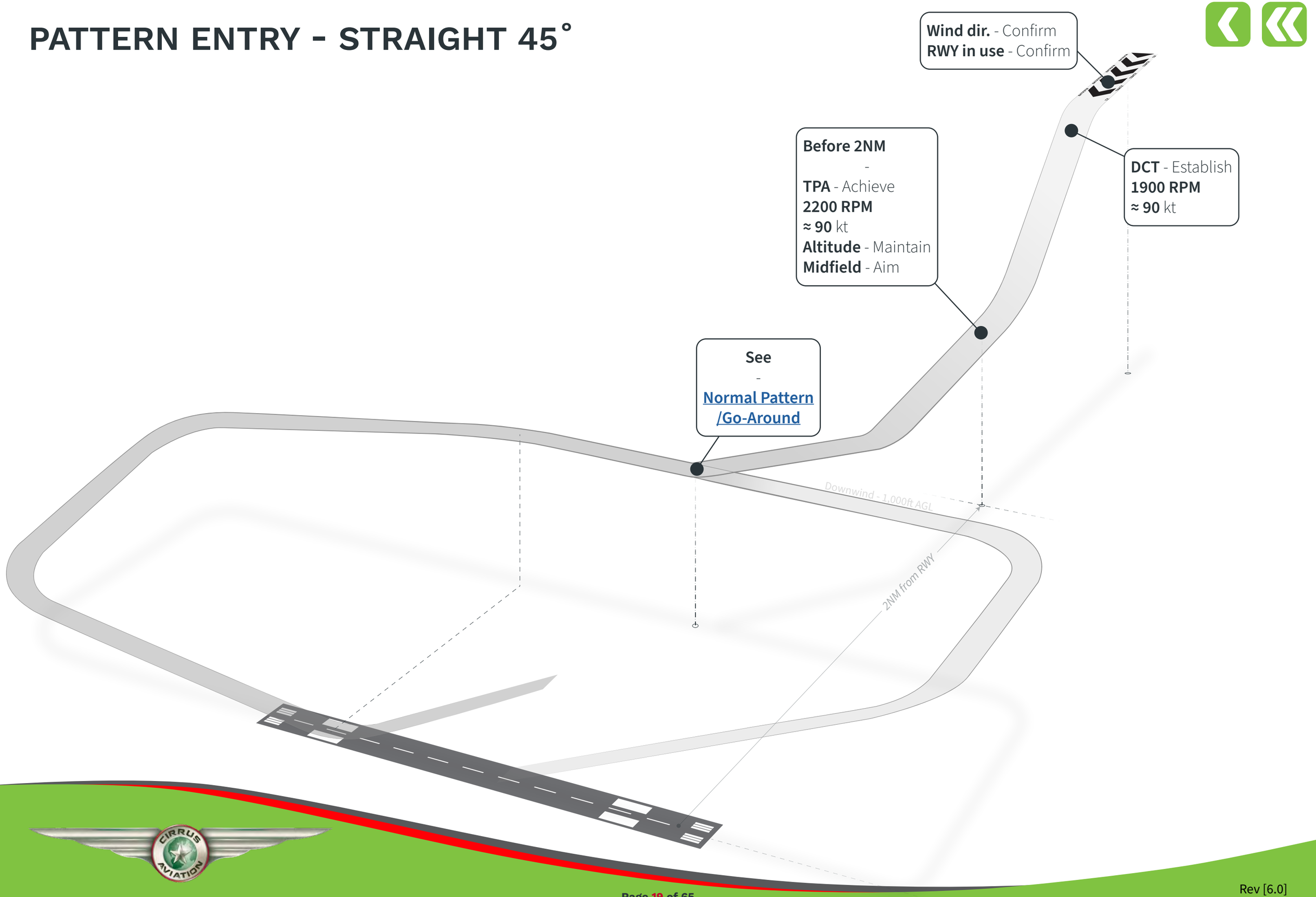


* When high cross wind or gusting conditions exist

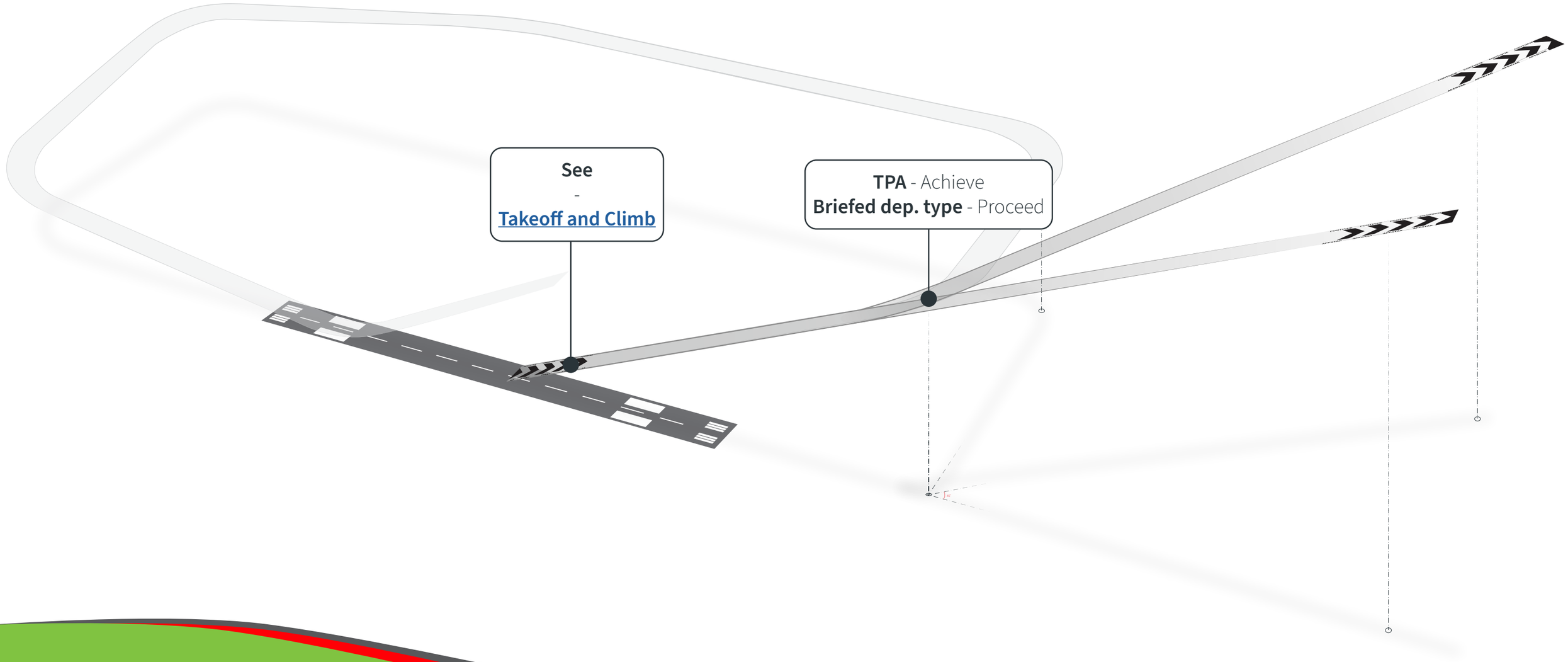
PATTERN ENTRY - TEARDROP



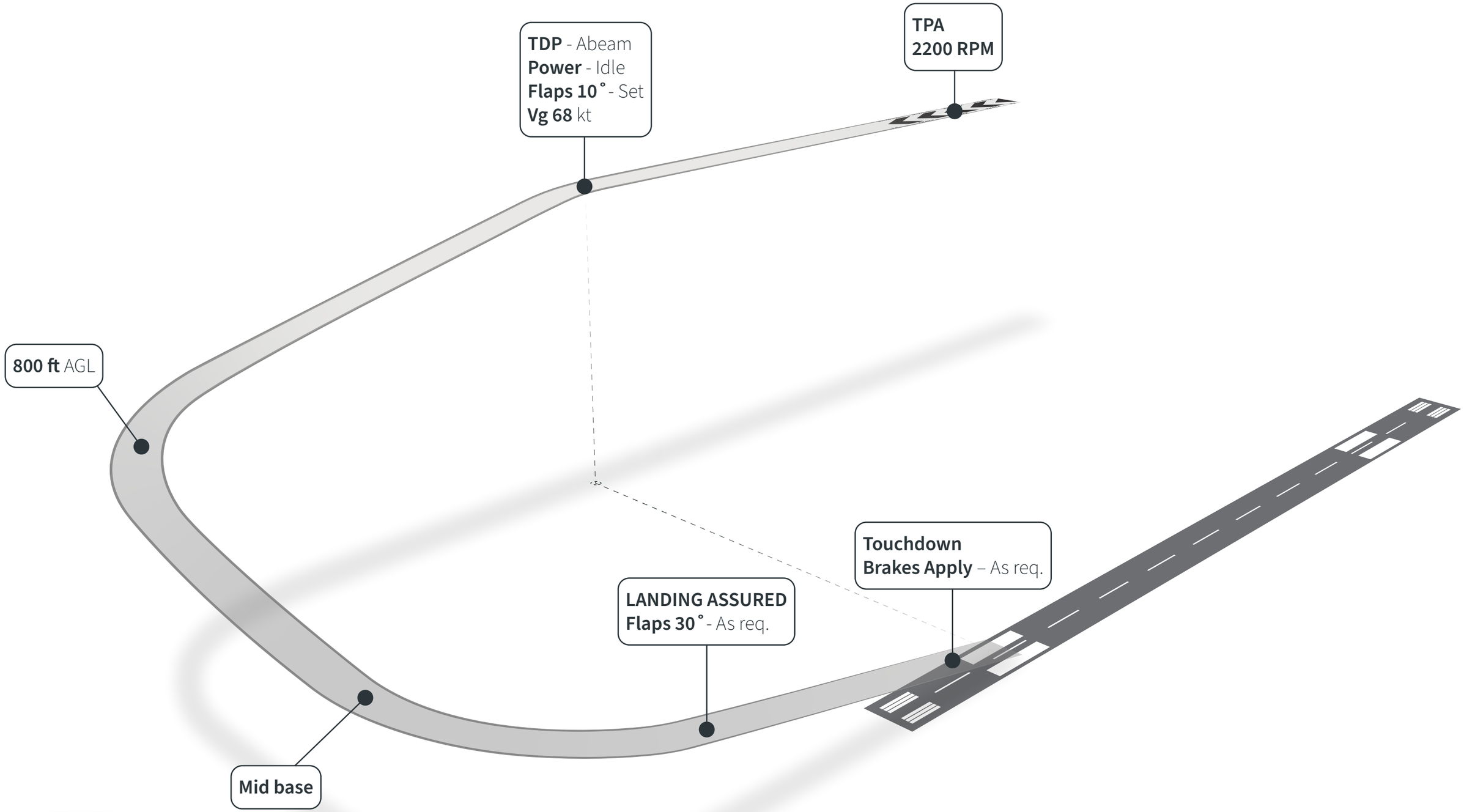
PATTERN ENTRY - STRAIGHT 45˚



PATTERN EXIT - STRAIGHT OUT & 45°



POWER OFF 180



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Part III: Slow Flight and Stalls

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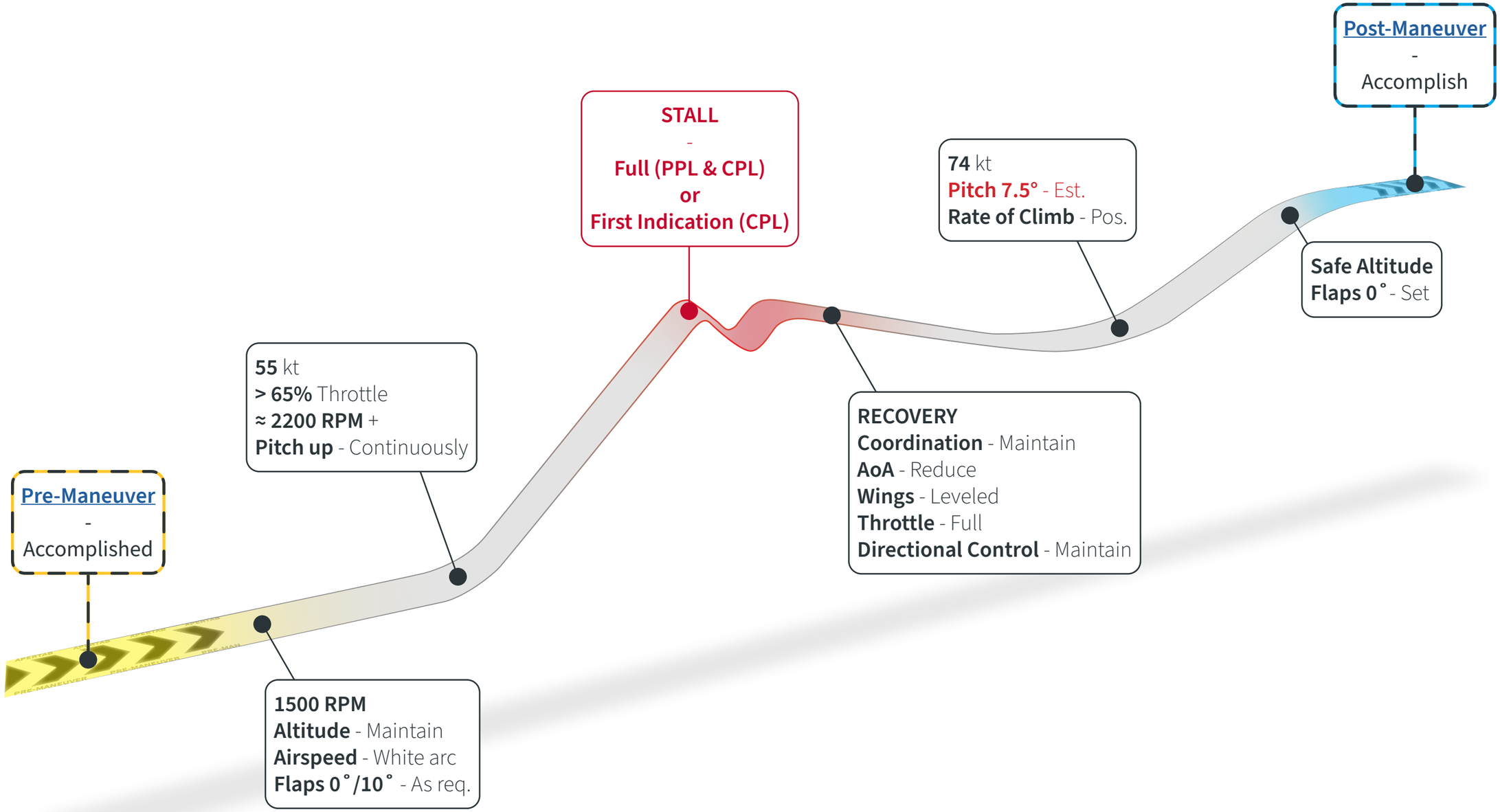
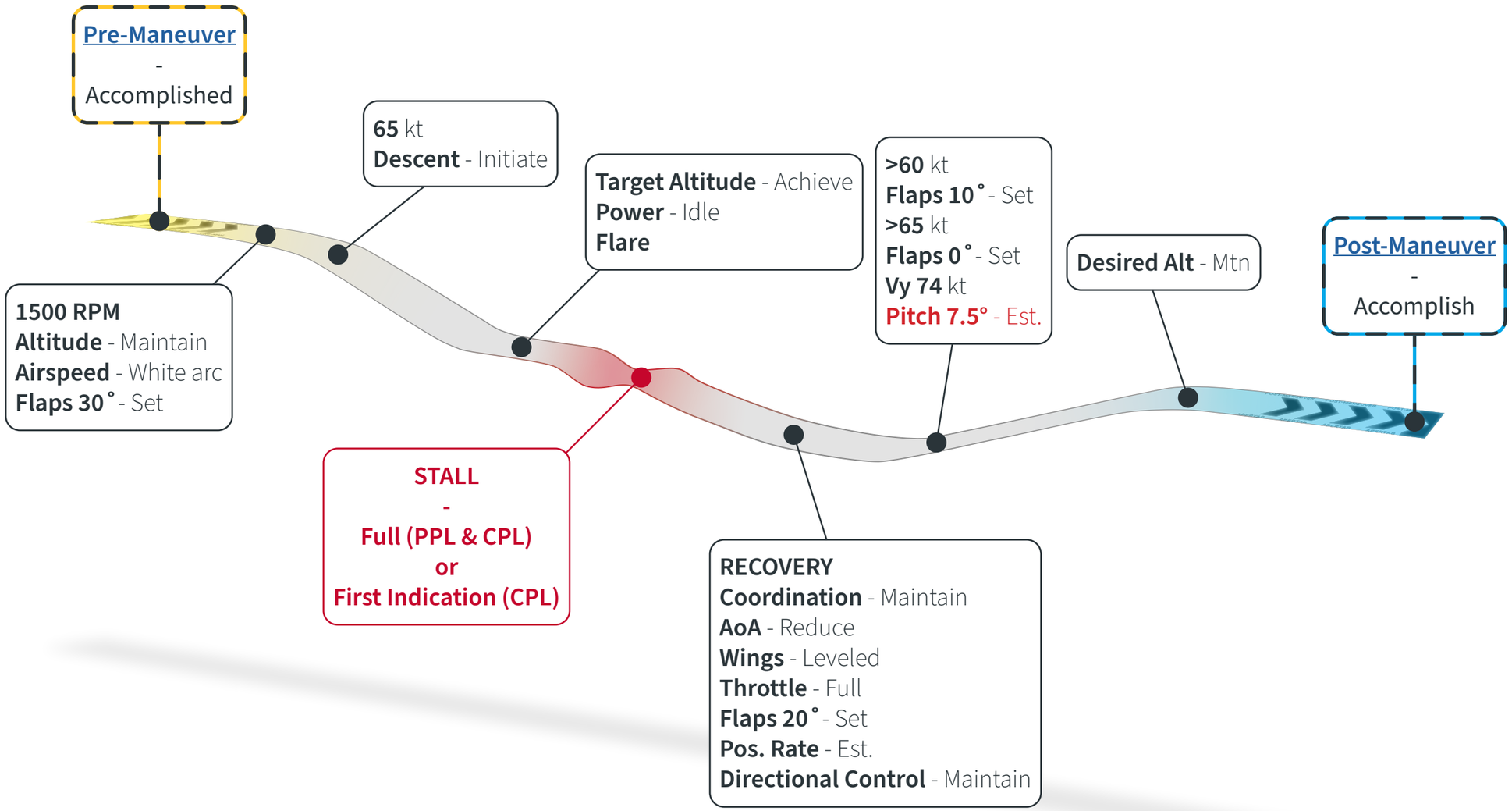
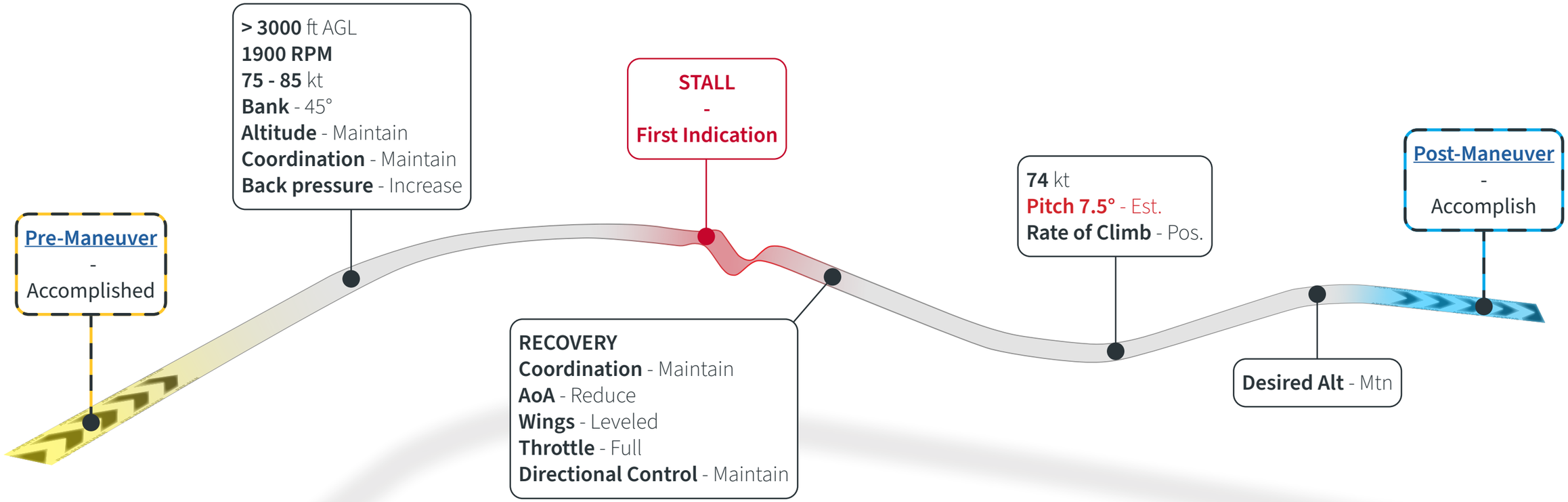
POWER ON STALL



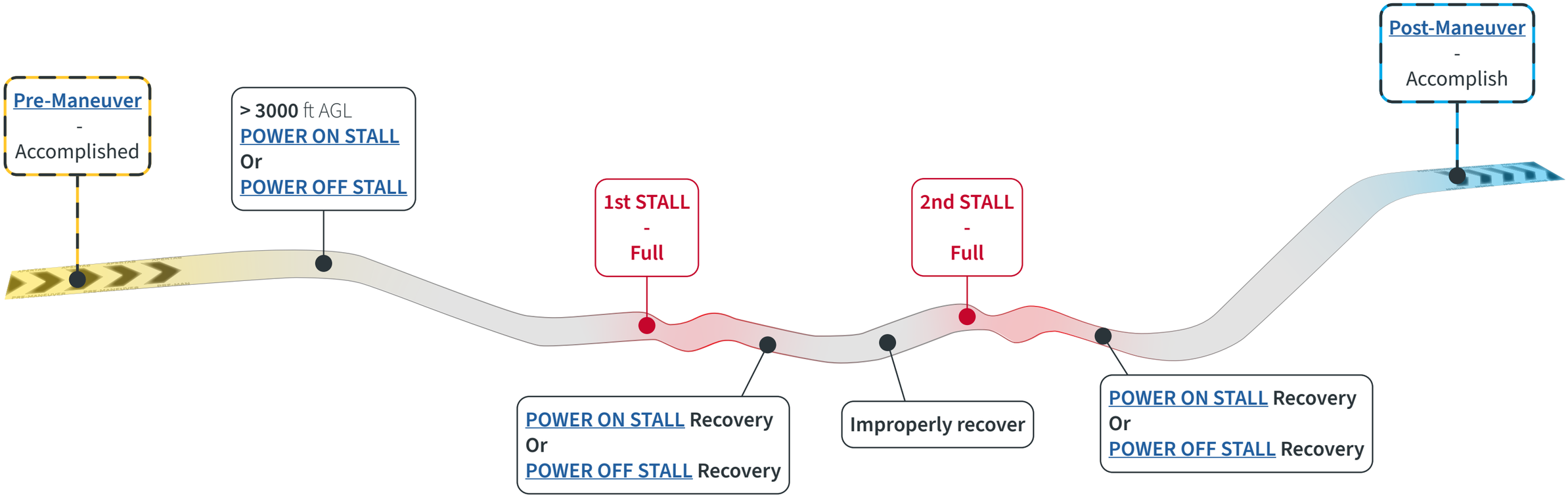
POWER OFF STALL



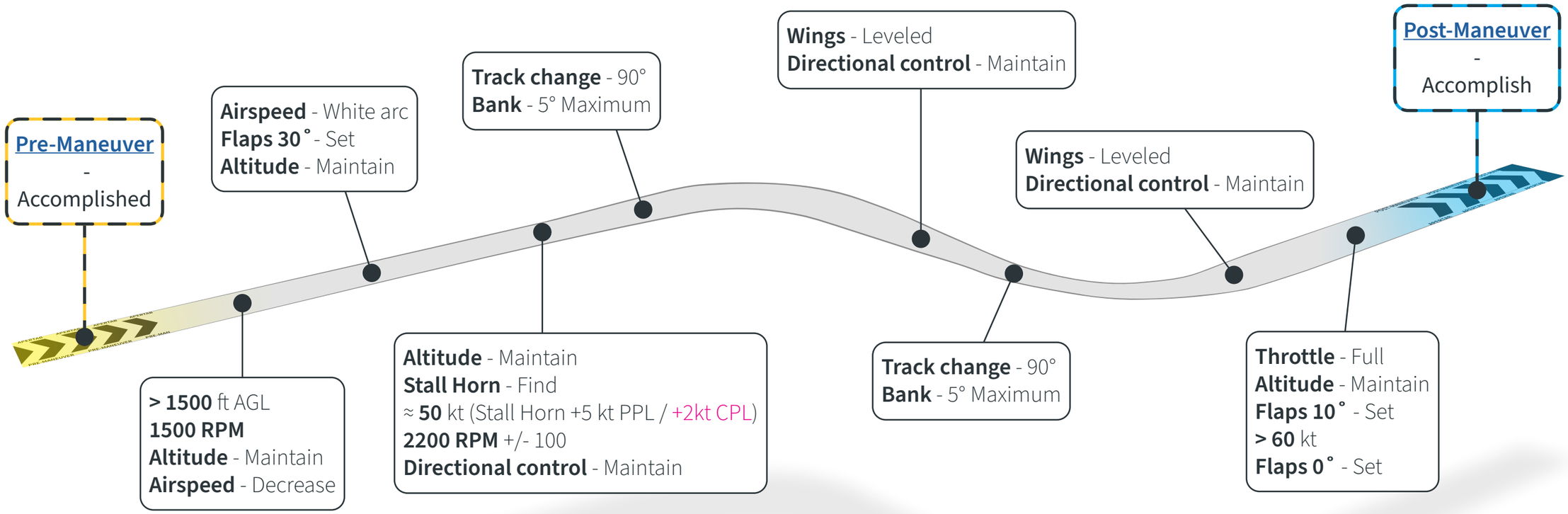
ACCELERATED STALL



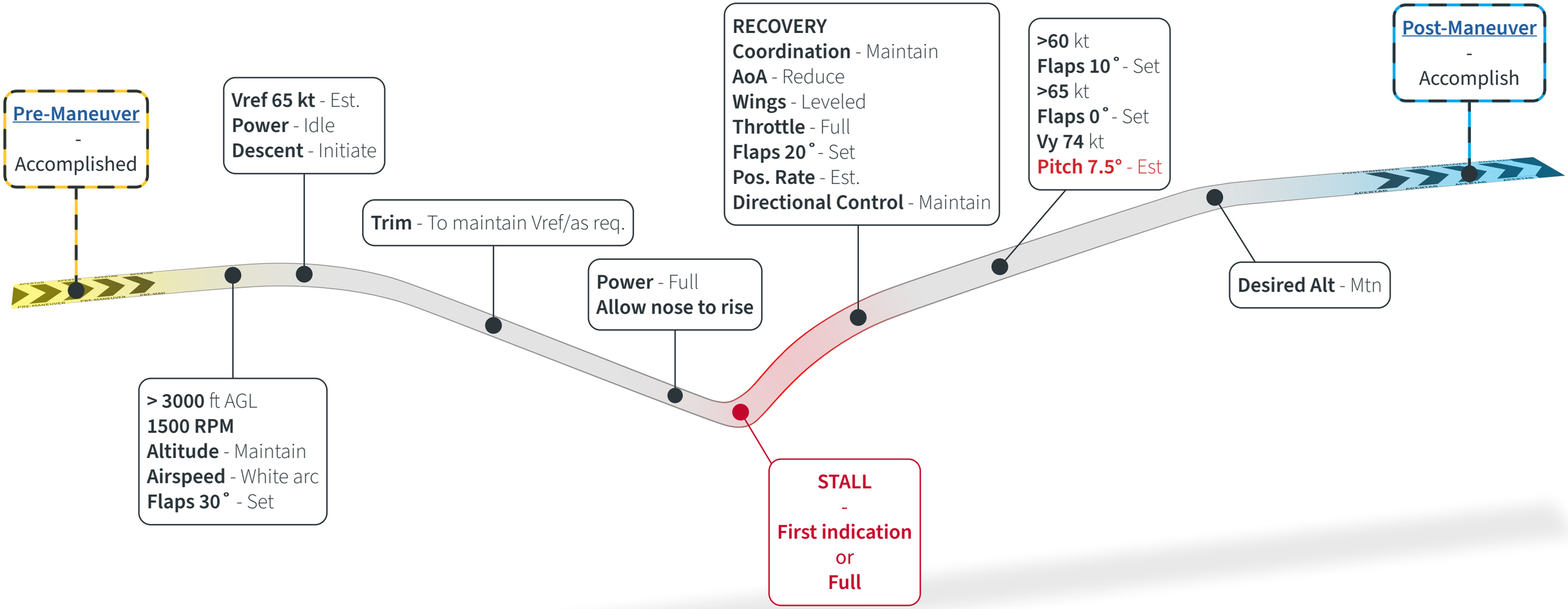
SECONDARY STALL (CFI)



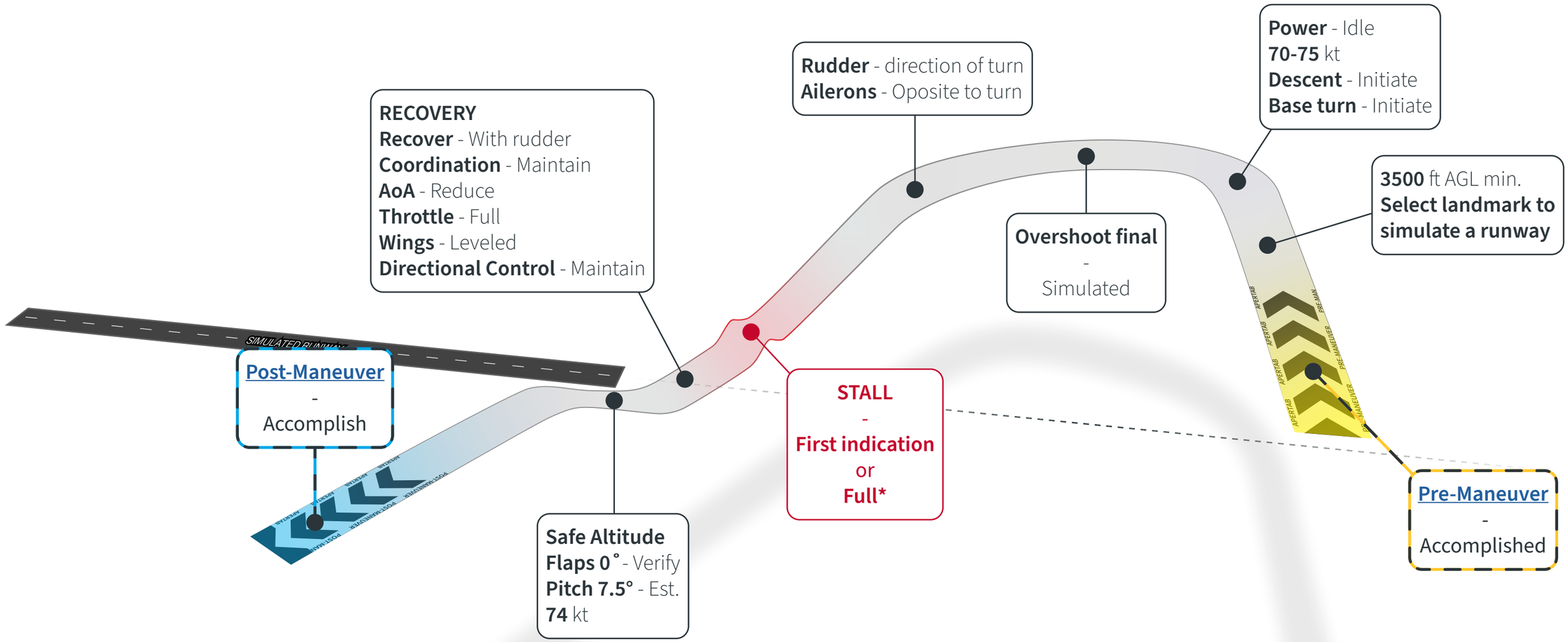
MANEUVERING DURING SLOW FLIGHT



ELEVATOR TRIM STALL (CFI)



CROSS CONTROL STALL (CFI)

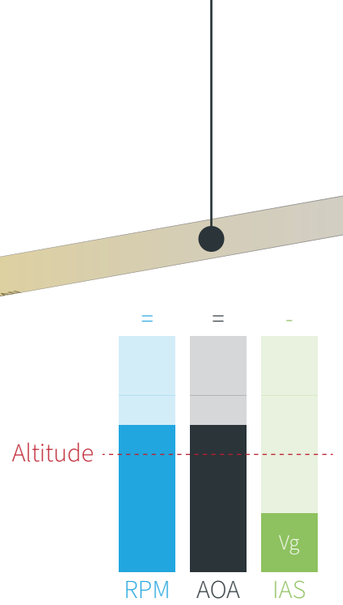


* High spin risk maneuver! Must have been briefed as part of the flight lesson on the ground, must respect all manufacturer's recommended provisions for intentional spins, must be performed >4,000ft AGL

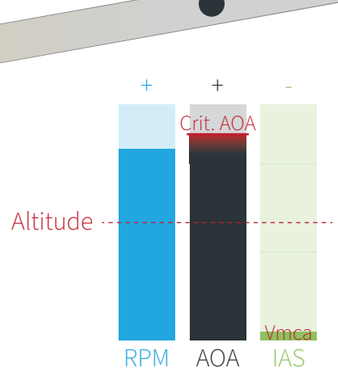
DEMO. OF FLIGHT CHARACTERISTICS (CFI) 1

Pre-Maneuver
-
Accomplished

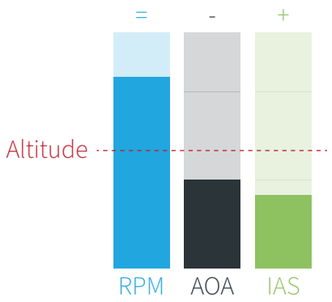
Clean config. demo.
Aispeed - Va
1500 RPM
Altitude - Maintain
Vg 68 kt - Est.
≈ 1900 RPM - As req. & Note



1500 RPM
AOA - Incr. as req. & Note
Vmca - Est. & Note
RPM - Incr. as req. & Note
Stall cues - Ack. & Note



RPM - Maintain
AOA - Decr.
Airspeed - Incr.
Altitude - Loose as req.

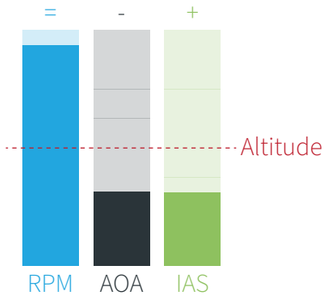


Clean demo. - Complete
-
Power - As req.
Assigned altitude - Return
Assigned heading - Return

≈ 2200 RPM
Strght & lvl flight - Est.
Aispeed - Va
Maneuver - Continue

RPM - Maintain
Strght & lvl flight - Re-establish
New airspeed - Note
Altitude loss - Note

DEMO. OF FLIGHT CHARACTERISTICS (CFI) 2



Landing conf. demo. - Complete

-

Power - As req.
Assigned altitude - Return
Assigned heading - Return

Landing config. demo.
1500 RPM
Altitude - Maintain
Airspeed - White arc
Flaps 30˚ - Set
Vref 65 kt - Est.
≈ 2200 RPM - As req. & Note

1500 RPM
AOA - Incr. as req. & Note
Vmca - Est. & Note
RPM - Incr. as req. & Note
Stall cues - Ack. & Note

RPM - Maintain
AOA - Decr.
Airspeed - Incr.
Altitude - Loose as req.

RPM - Maintain
Strght & lvl flight - Re-establish
New airspeed - Note
Altitude loss - Note

Post-Maneuver

-

Accomplish

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Part IV: Performance and Ground Reference Maneuvers

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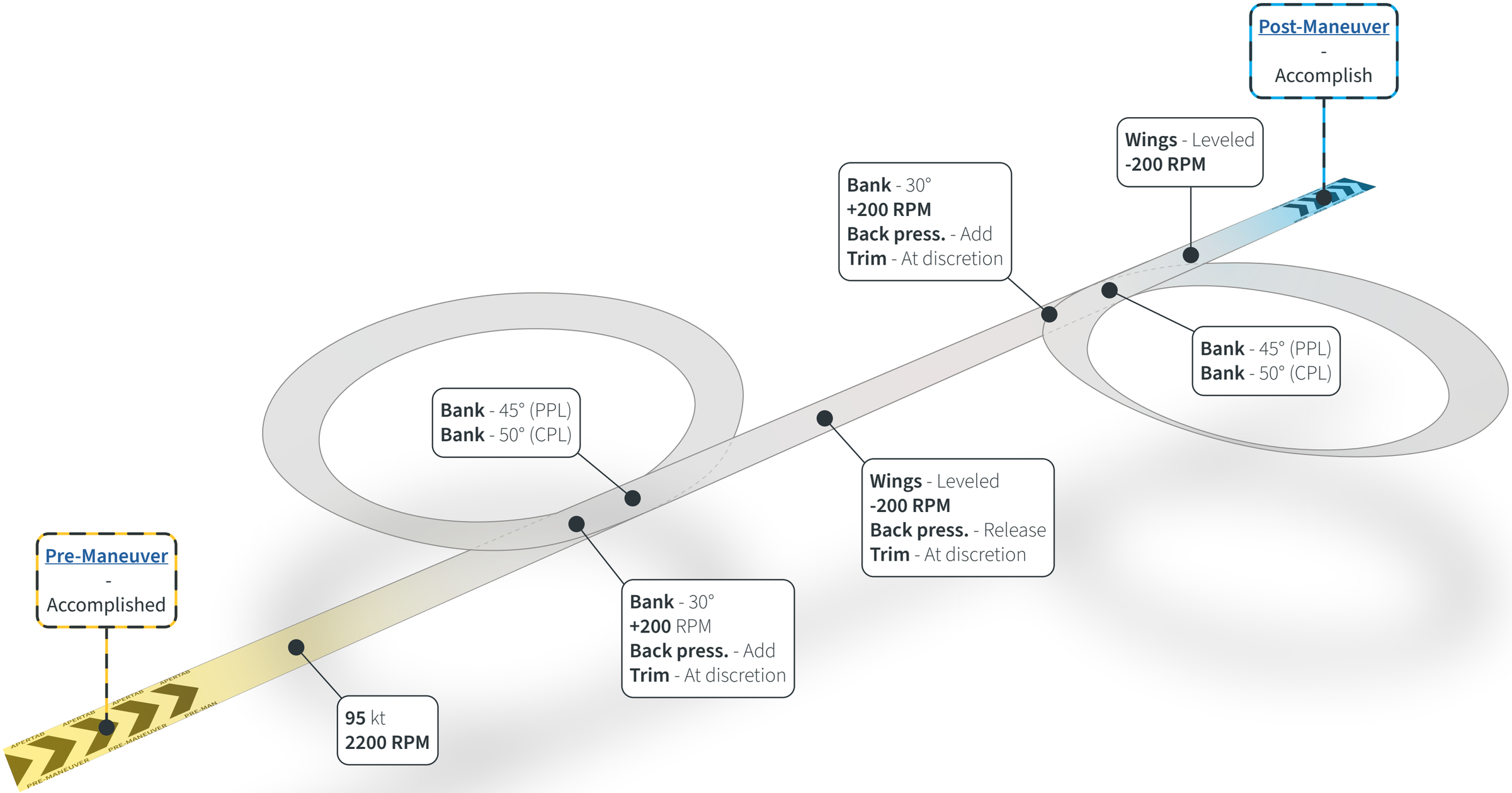
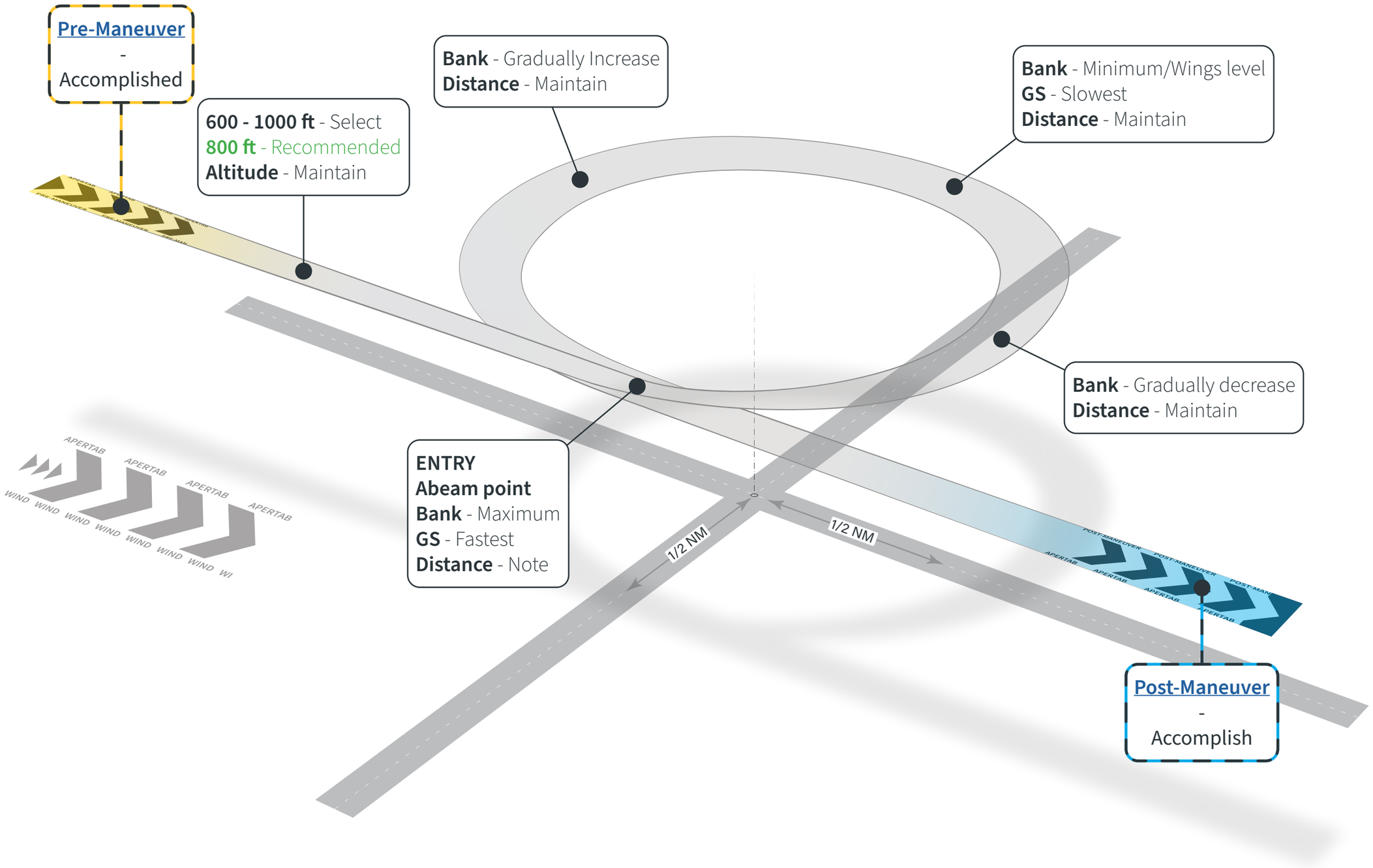
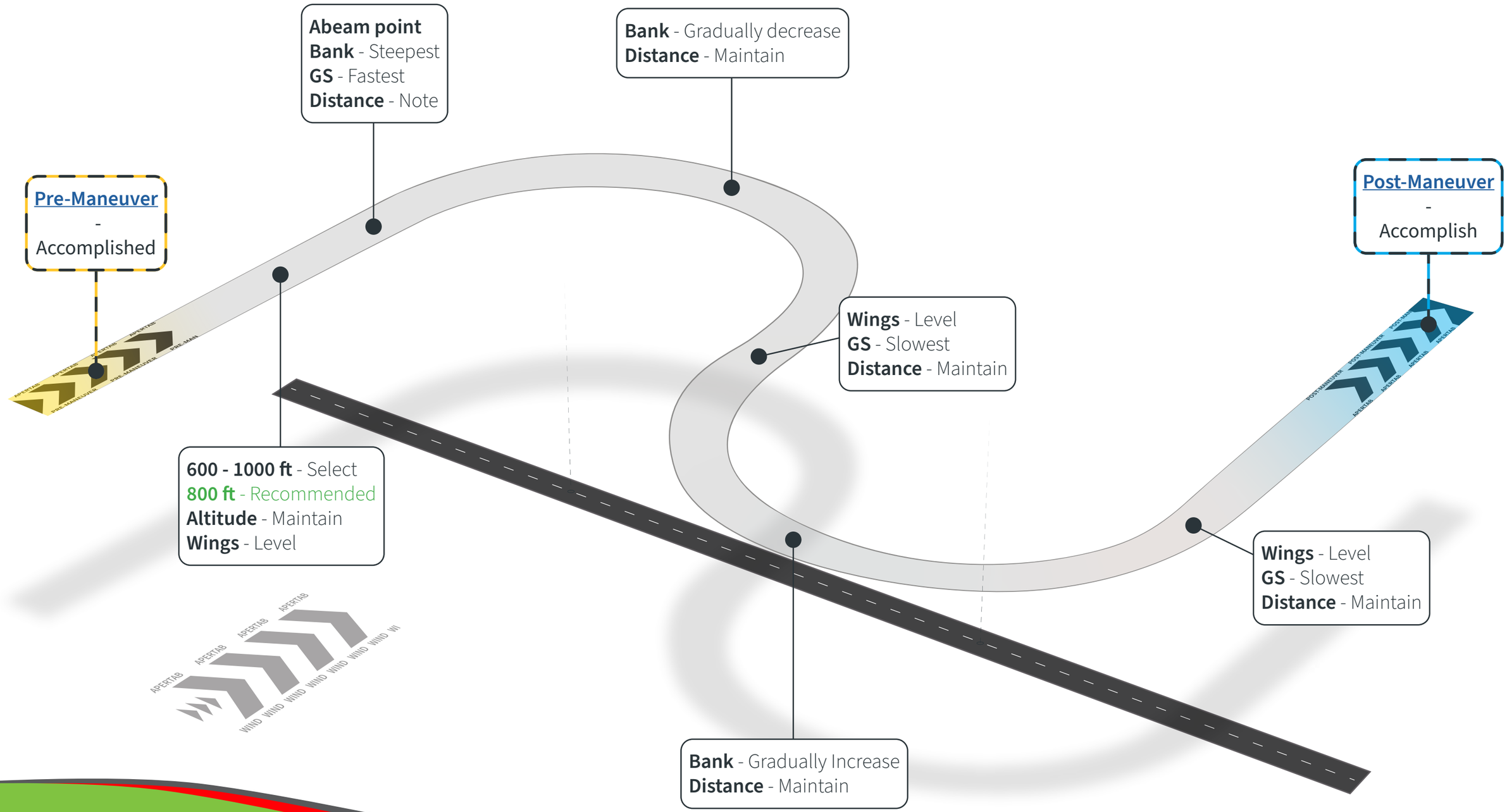
STEEP TURNS


Post-Maneuver
-
Accomplish
Wings - Leveled
-200 RPM
Bank - 30°
+200 RPM
Back press. - Add
Trim - At discretion
Bank - 45° (PPL)
Bank - 50° (CPL)
Bank - 45° (PPL)
Bank - 50° (CPL)
Wings - Leveled
-200 RPM
Back press. - Release
Trim - At discretion
Bank - 30°
+200 RPM
Back press. - Add
Trim - At discretion
Pre-Maneuver
-
Accomplished
95 kt
2200 RPM
APERTAB
PRE-MANEUVER
PRE-MAN

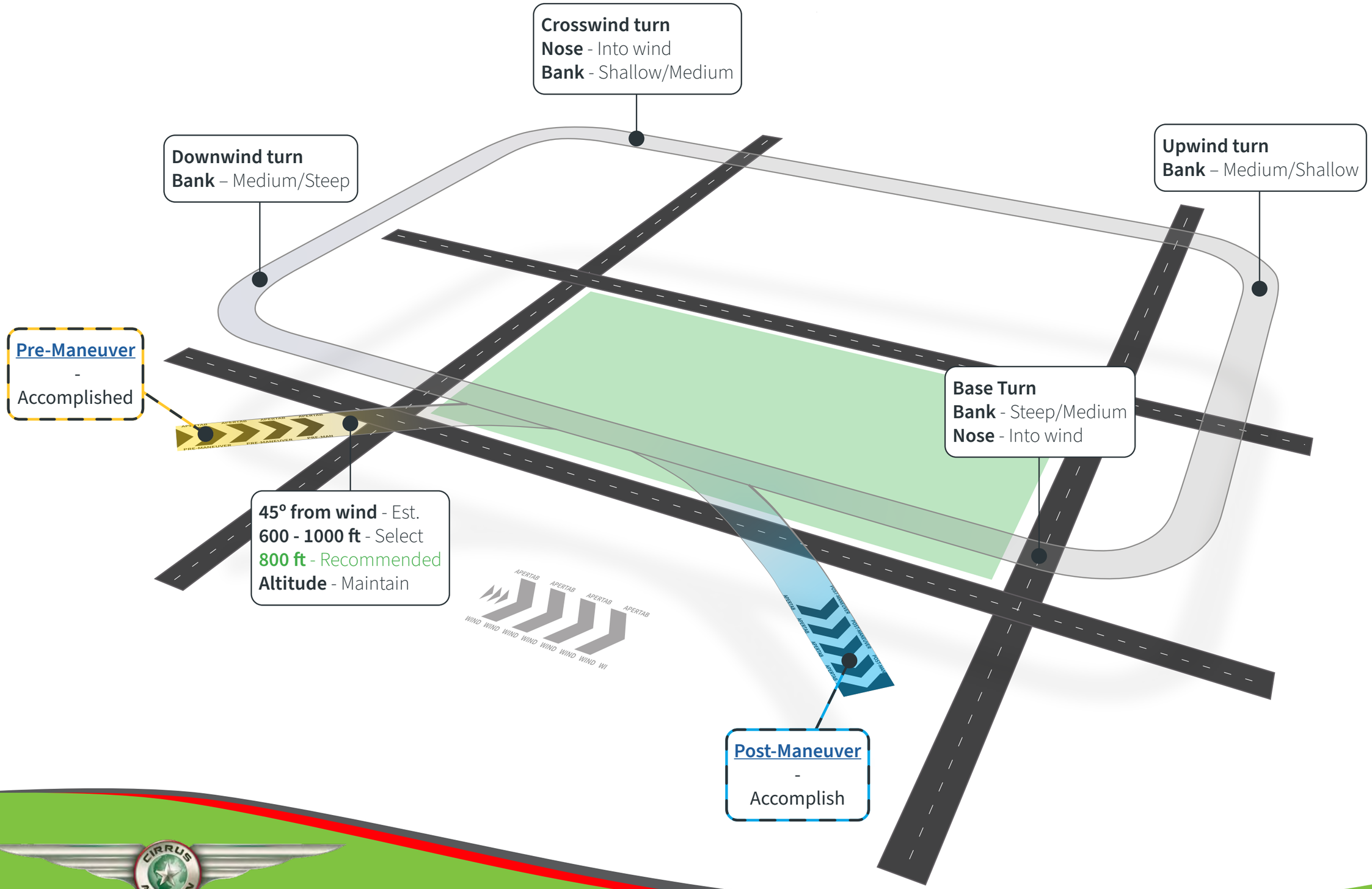
TURN AROUND A POINT



S-TURNS

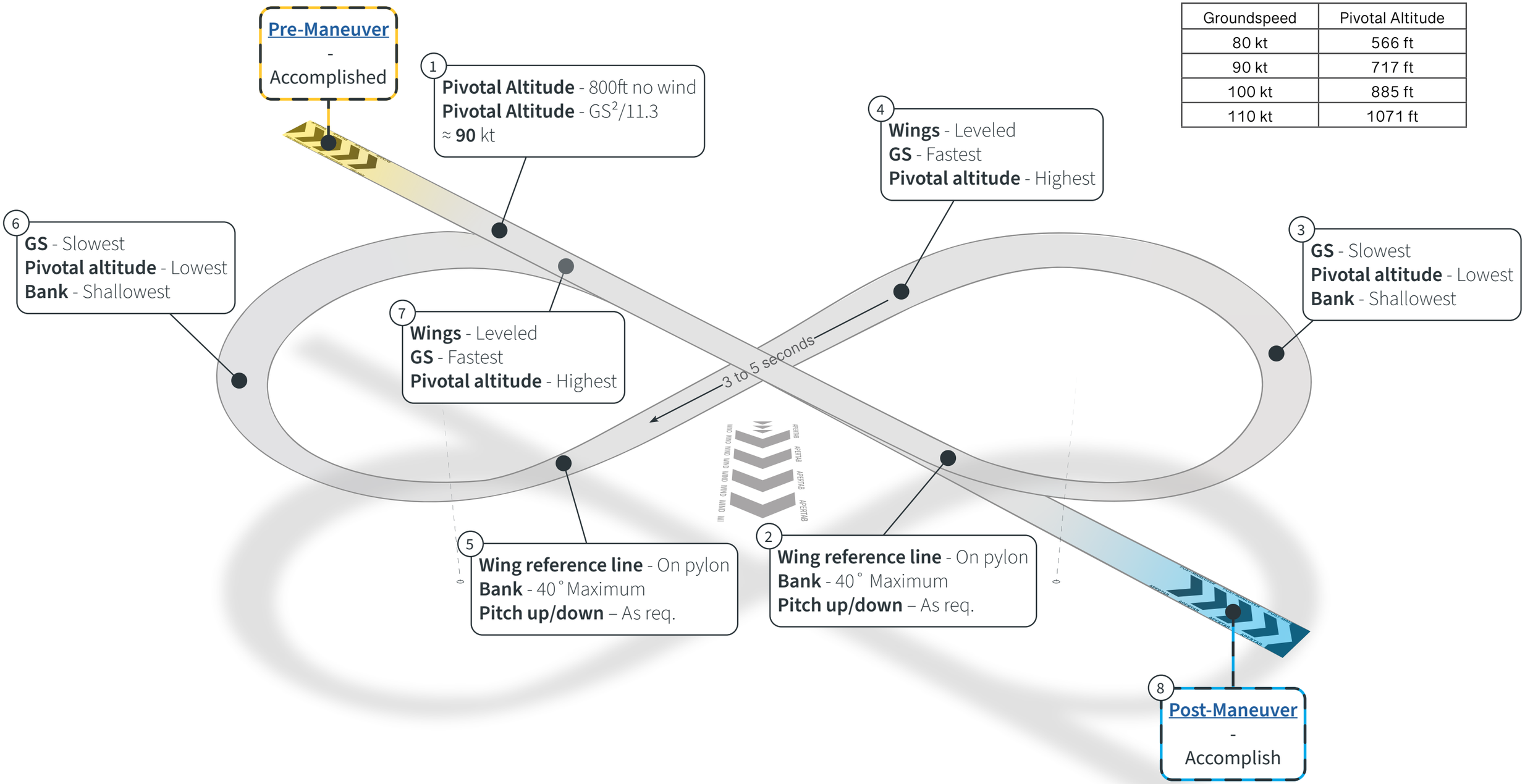

Abeam point
Bank - Steepest
GS - Fastest
Distance - Note
Bank - Gradually decrease
Distance - Maintain
Pre-Maneuver
-
Accomplished
Post-Maneuver
-
Accomplish
Wings - Level
GS - Slowest
Distance - Maintain
600 - 1000 ft - Select
800 ft - Recommended
Altitude - Maintain
Wings - Level
Wings - Level
GS - Slowest
Distance - Maintain
Bank - Gradually Increase
Distance - Maintain

RECTANGULAR COURSE

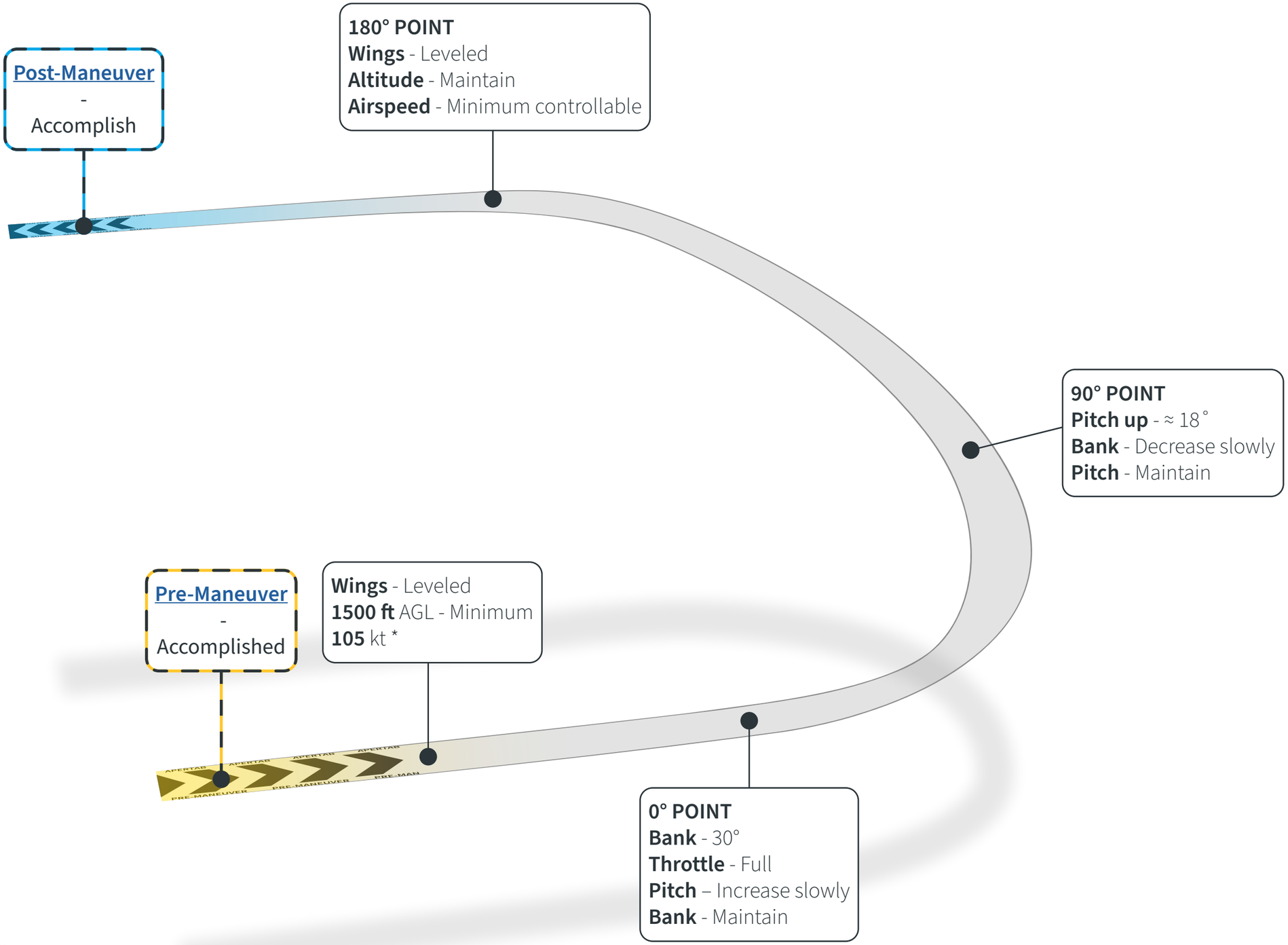


EIGHTS ON PYLONS

Groundspeed	Pivotal Altitude
80 kt	566 ft
90 kt	717 ft
100 kt	885 ft
110 kt	1071 ft

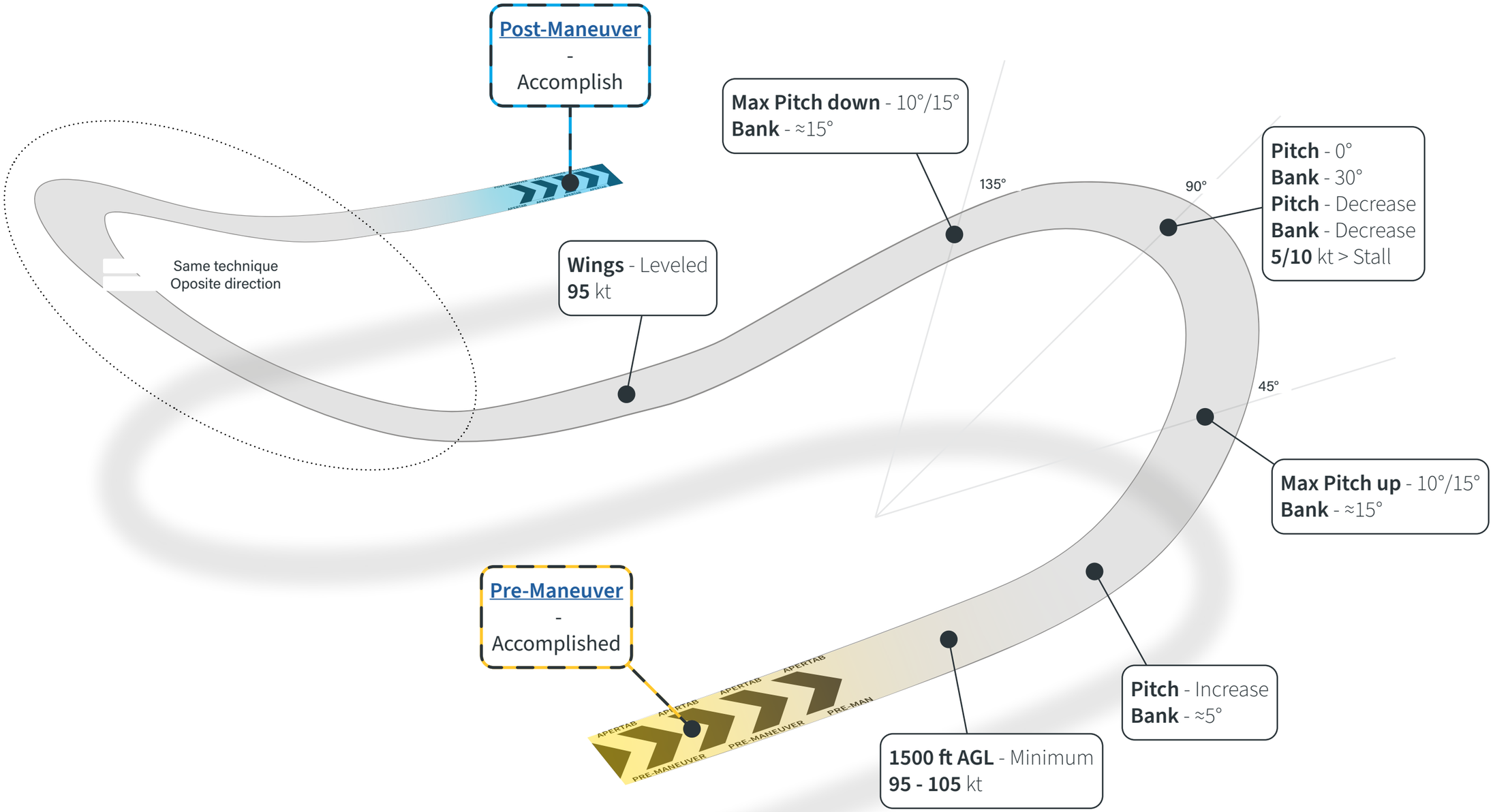


CHANDELLES

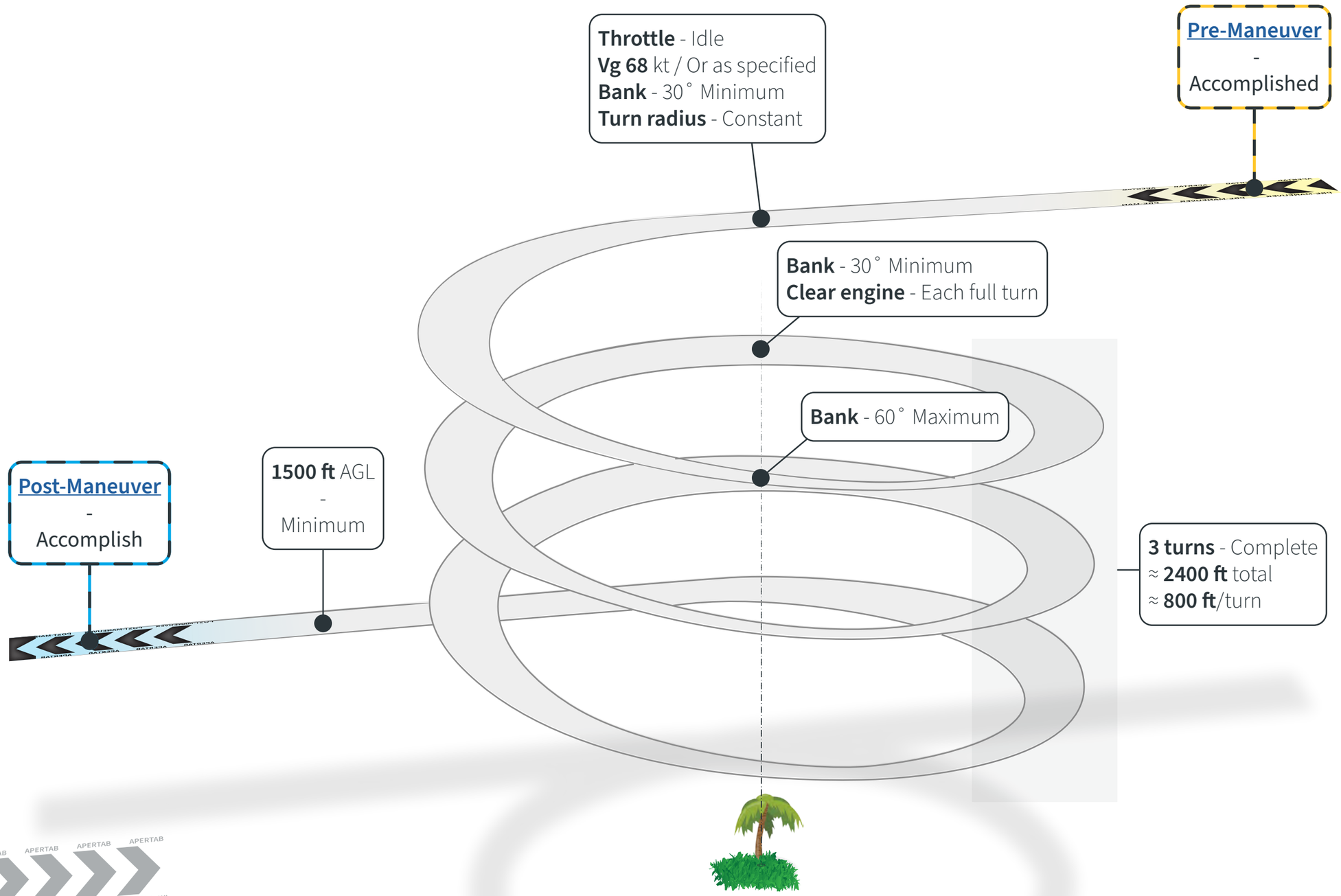


* A shallow dive may be required

LAZY EIGHTS


Post-Maneuver
-
Accomplish
Same technique
Oposite direction
Max Pitch down - 10°/15°
Bank - ≈15°
135°
90°
Pitch - 0°
Bank - 30°
Pitch - Decrease
Bank - Decrease
5/10 kt > Stall
Wings - Leveled
95 kt
45°
Max Pitch up - 10°/15°
Bank - ≈15°
Pre-Maneuver
-
Accomplished
APERTAB
PRE-MANEUVER
Pitch - Increase
Bank - ≈5°
1500 ft AGL - Minimum
95 - 105 kt

STEEP SPIRALS



* No preferred wind entry.

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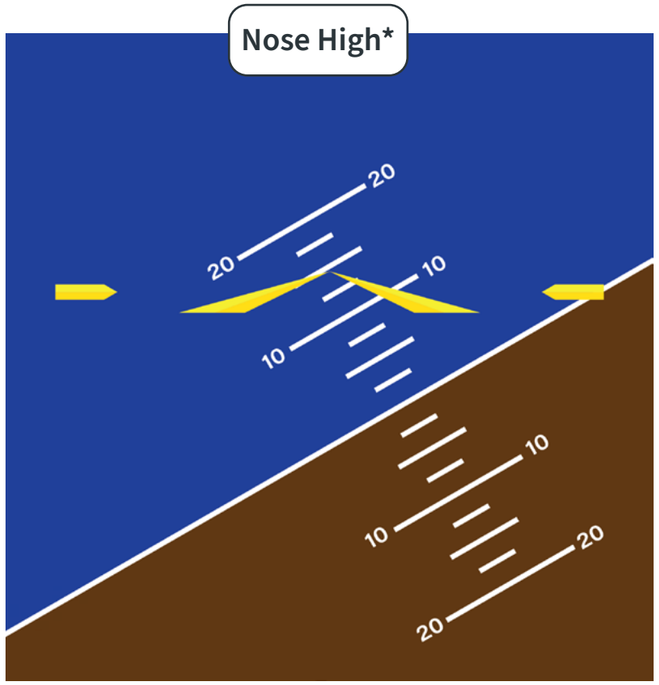
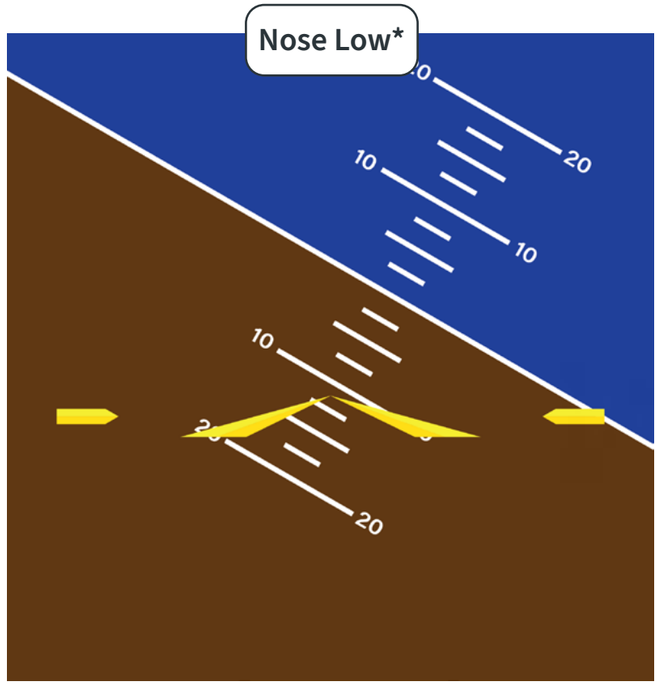
Part V: Emergency Procedures

UNUSUAL ATTITUDE RECOVERY



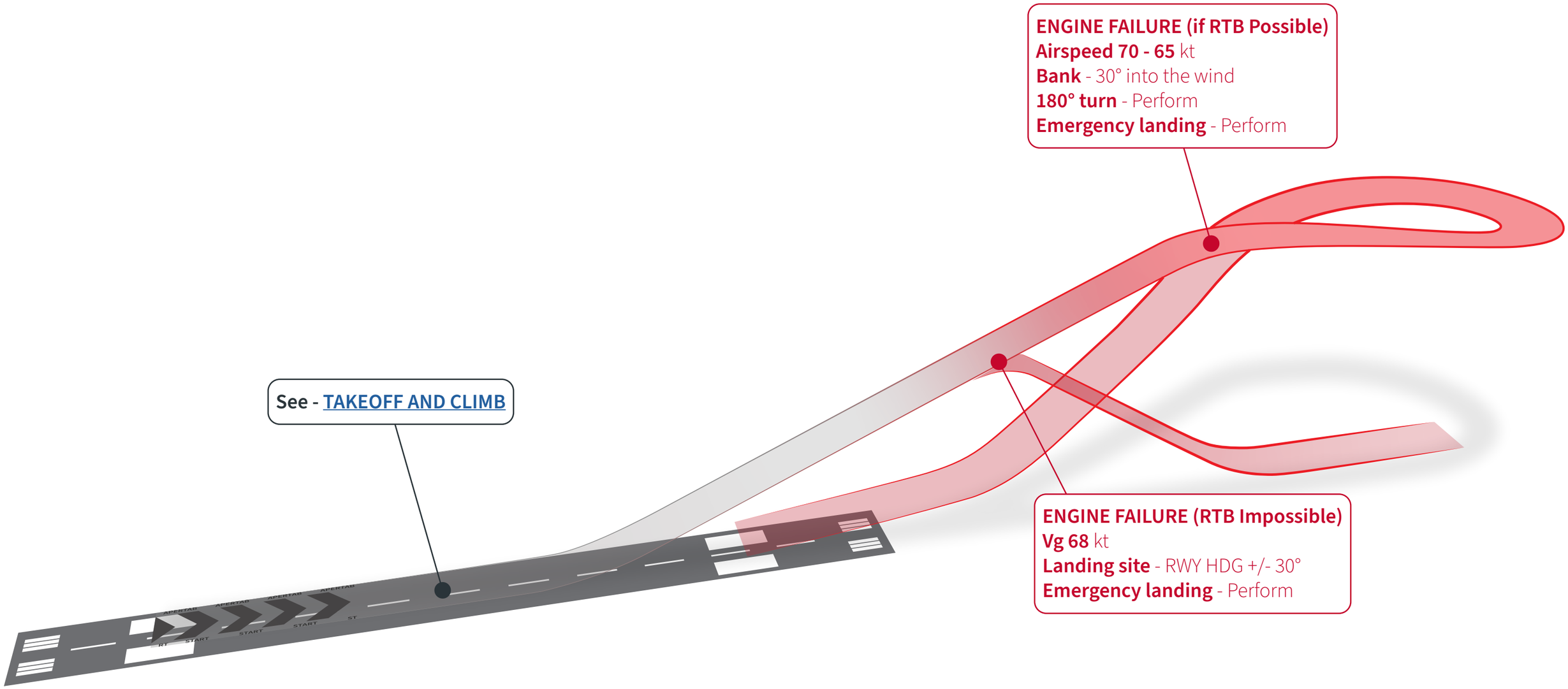
1. **POWER** FULL
2. **PITCH** DECREASE
3. **WINGS** LEVEL WITH RUDDER COORDINATION
4. **ALTITUDE** RETURN
5. **HEADING** RETURN



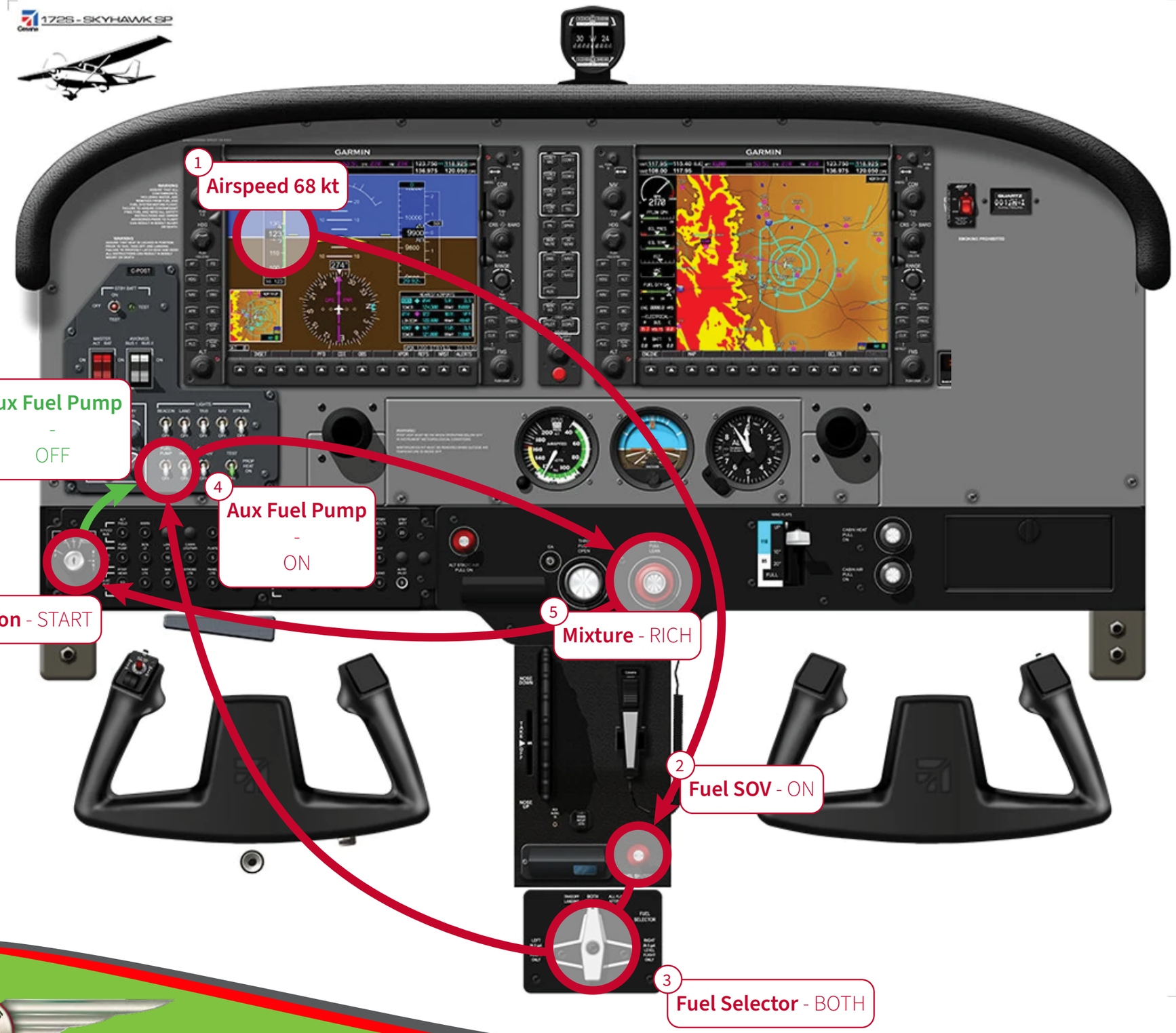
1. **POWER** IDLE OR AS REQ.
2. **WINGS** LEVEL WITH RUDDER COORDINATION
3. **PITCH** INCREASE
4. **ALTITUDE** RETURN
5. **HEADING** RETURN

* Nose high or nose low unusual attitudes can be made with a left, right or no bank. The bank does not change the recovery procedure

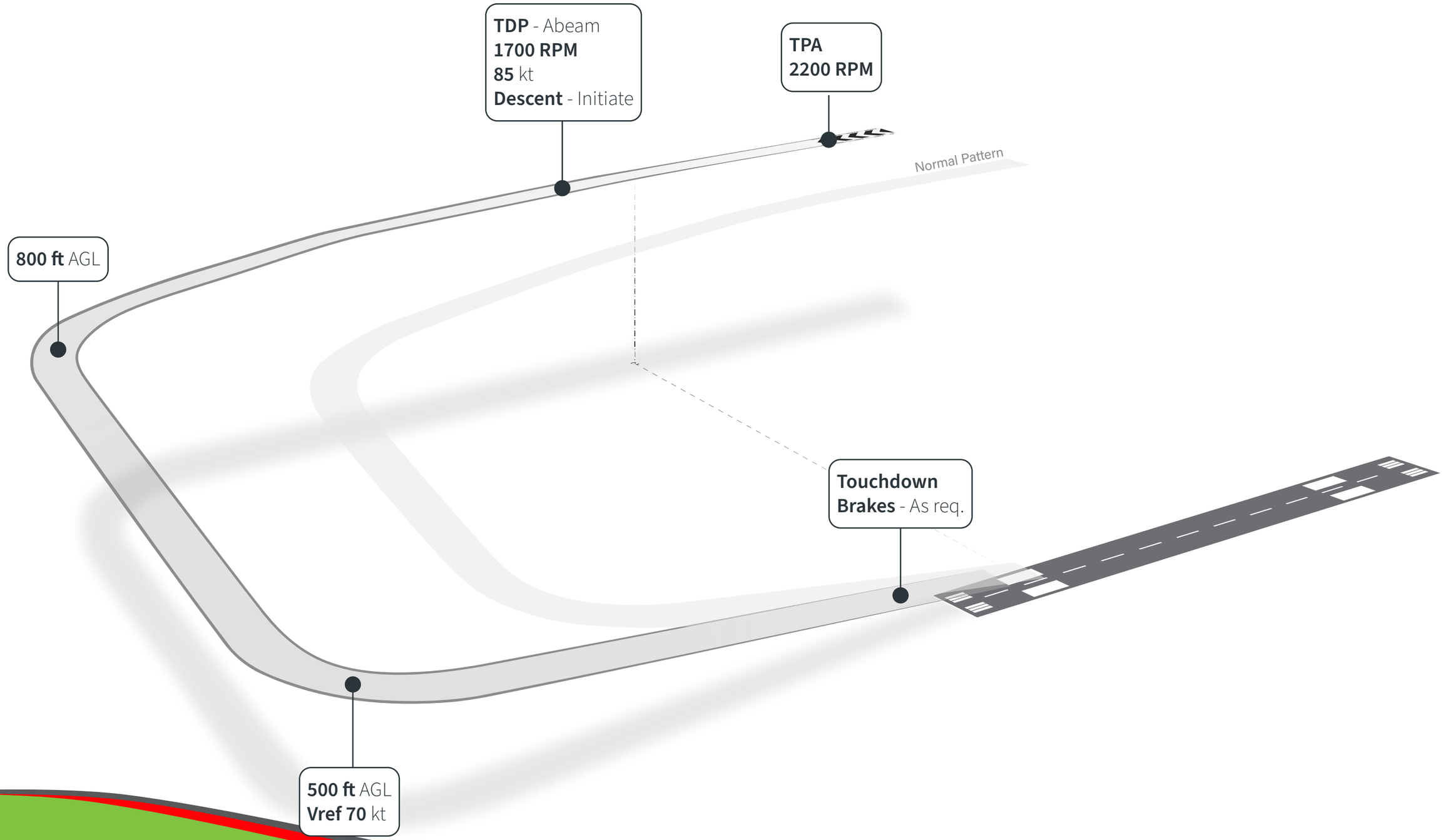
ENGINE FAILURE AFTER TAKEOFF



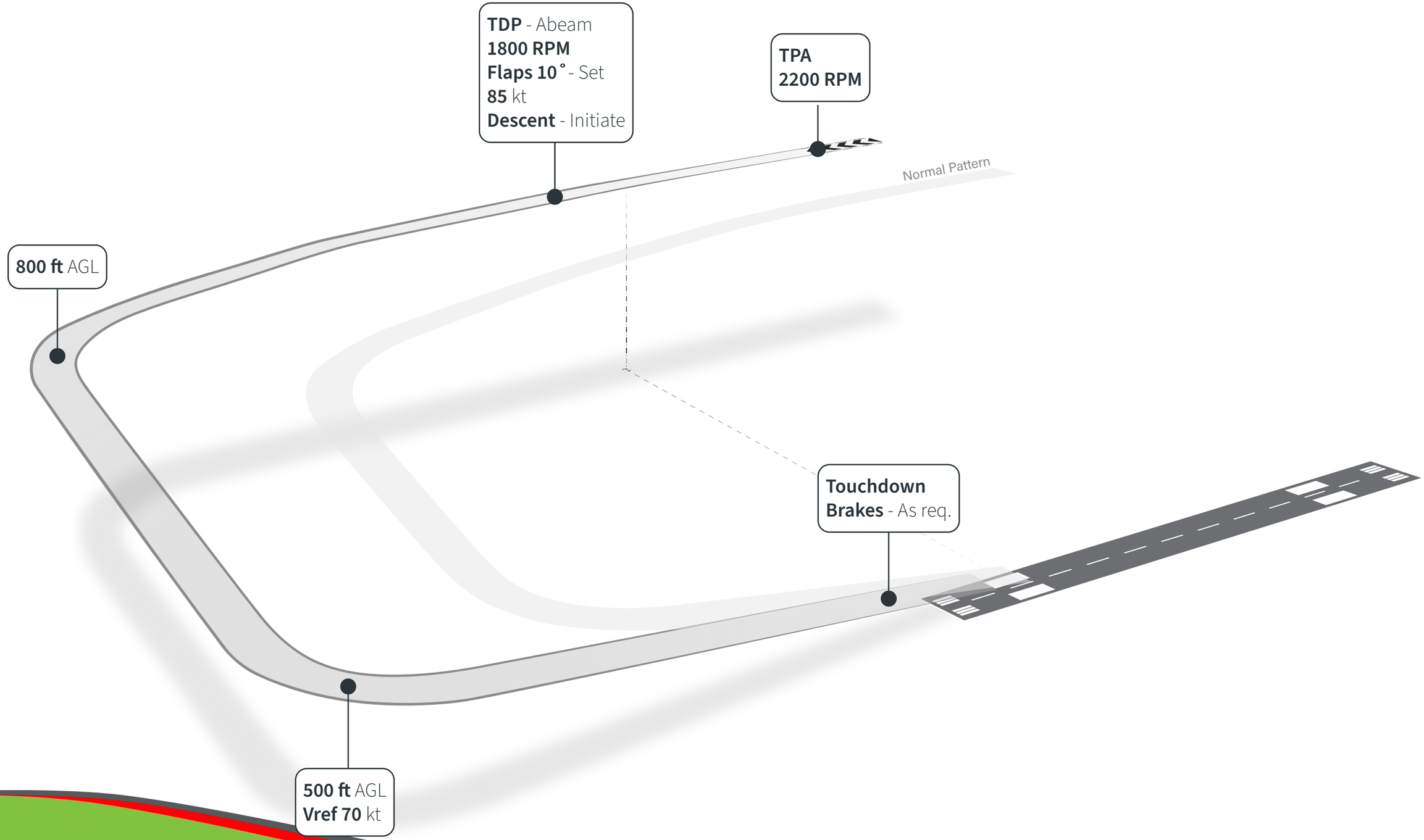
ENGINE FAILURE INFLIGHT - RESTART



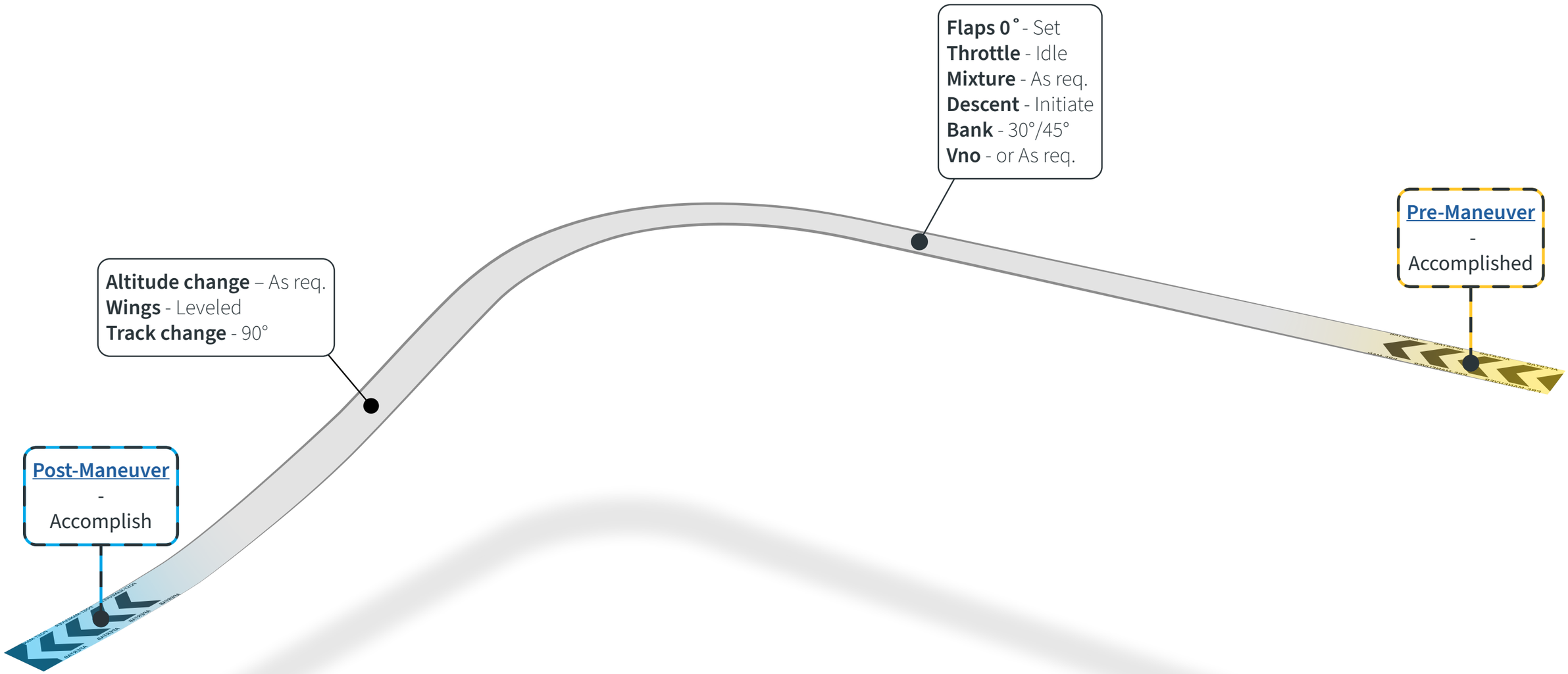
REDUCED FLAPS LANDING - FLAPS 0°



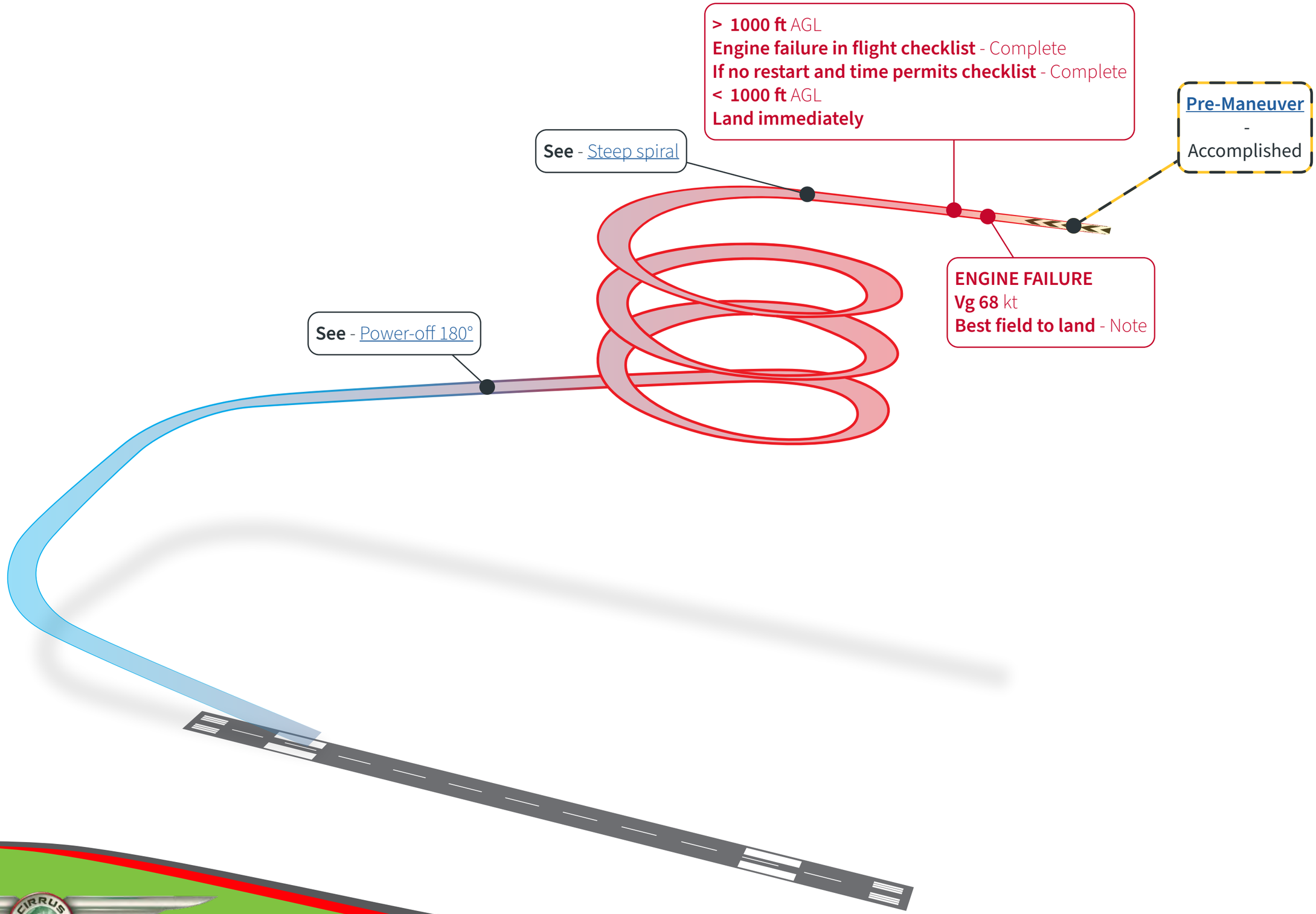
REDUCED FLAPS LANDING - FLAPS 10˚



EMERGENCY DESCENT



EMERGENCY APPROACH AND LANDING

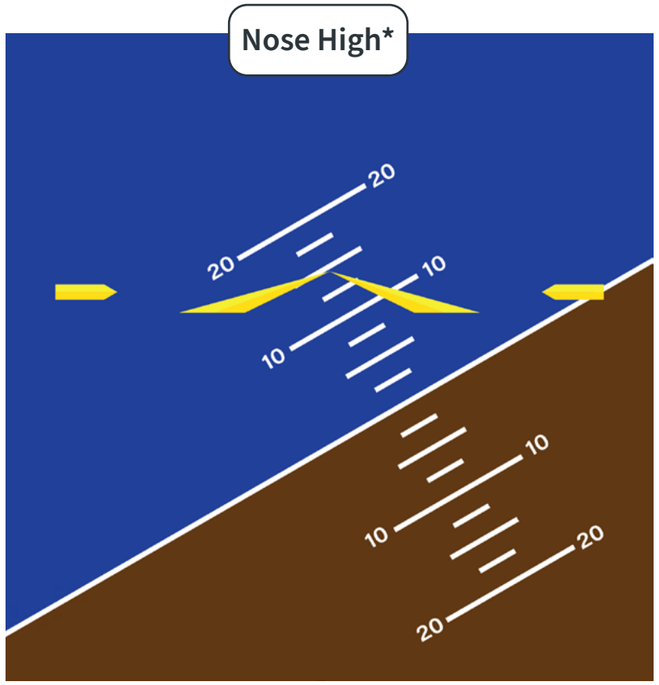


CESSNA SKYHAWK C-172 SP

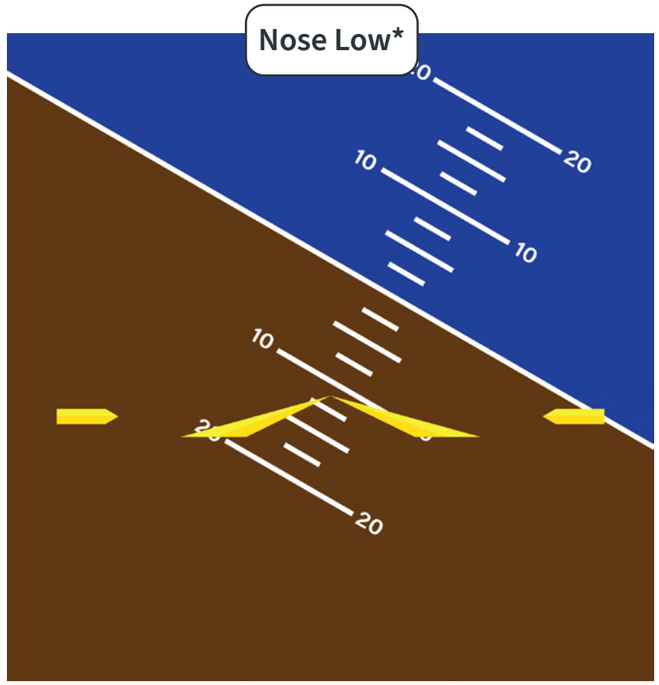
Part VI: IFR

Rev [6.0]

UNUSUAL ATTITUDE RECOVERY (IMC)



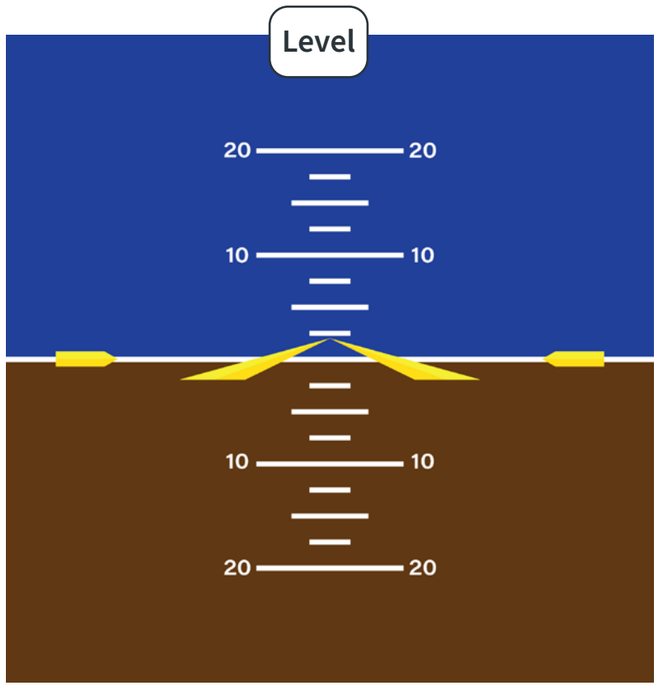
1. **POWER** FULL
2. **PITCH** DECREASE
3. **WINGS** LEVEL WITH RUDDER COORDINATION
4. **ALTITUDE** RETURN
5. **HEADING** RETURN



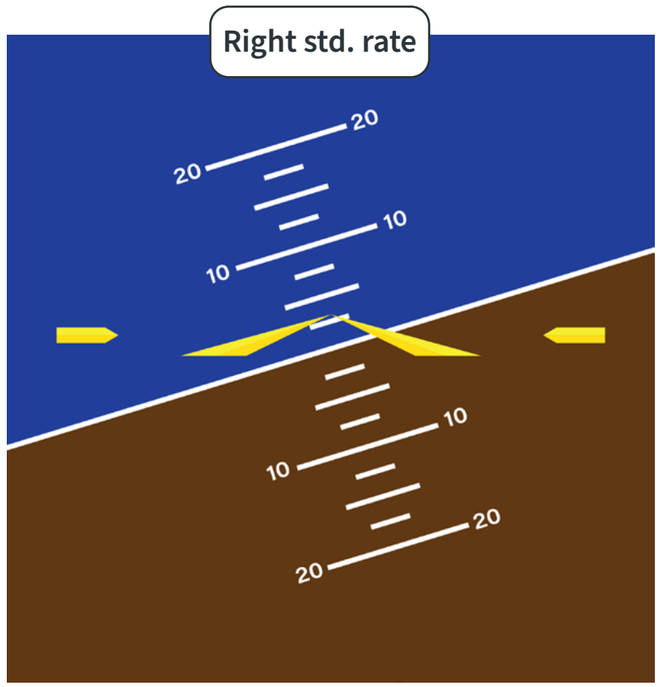
1. **POWER** IDLE OR AS REQ.
2. **WINGS** LEVEL WITH RUDDER COORDINATION
3. **PITCH** INCREASE
4. **ALTITUDE** RETURN
5. **HEADING** RETURN

* Nose high or nose low unusual attitudes can be made with a left, right or no bank. The bank does not change the recovery procedure

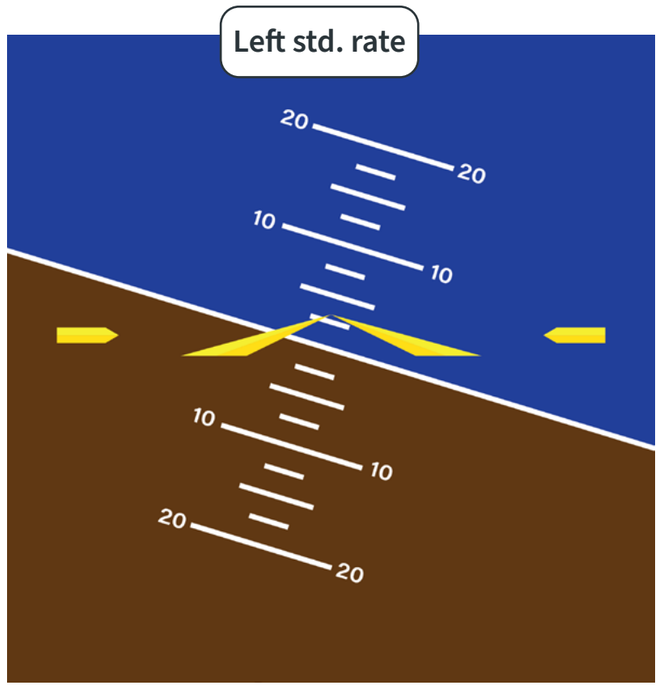
180 TURNS & STD RATE TURNS (IMC)



1. **POWER** 2200 RPM
2. **PITCH** ≈ 2.5˚
3. **ALTITUDE** MAINTAIN
4. **HEADING** NOTE



OR

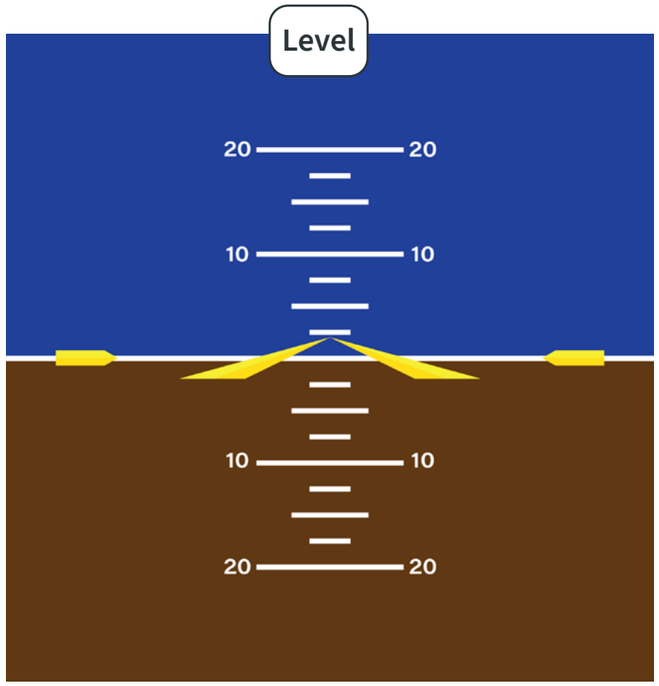


1. **POWER** + 100 RPM
2. **PITCH** + 1˚
3. **ALTITUDE** MAINTAIN
4. **HEADING** + 180˚ AS REQ

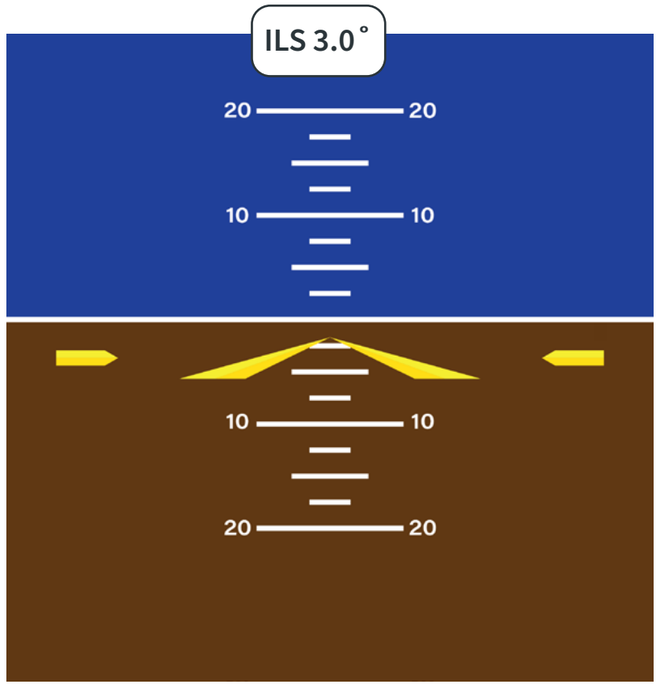
* The bank should match a standard rate, you can use this equation to approximate it:

Bank = (TAS /10) + 5

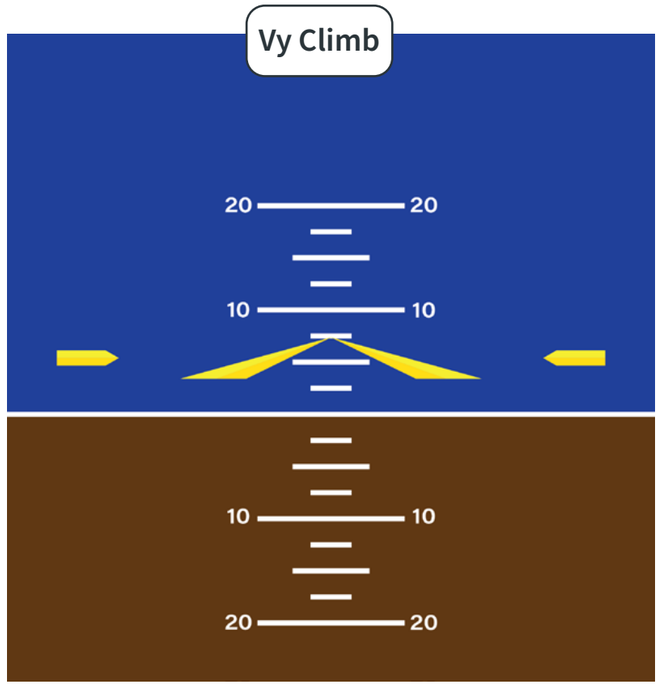
IFR BASIC MANEUVERS



1. **POWER** 2200 RPM
2. **PITCH** ≈ 2.5˚UP
3. **ALTITUDE** MAINTAIN
4. **HEADING** MAINTAIN

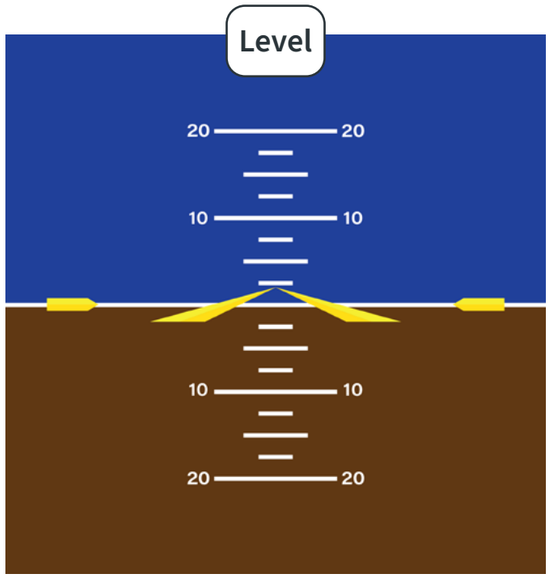


1. **POWER** 1900 RPM
2. **PITCH** ≈ -2.0˚ DN
3. **FLAPS** 10˚
4. **SPEED** 90 KT

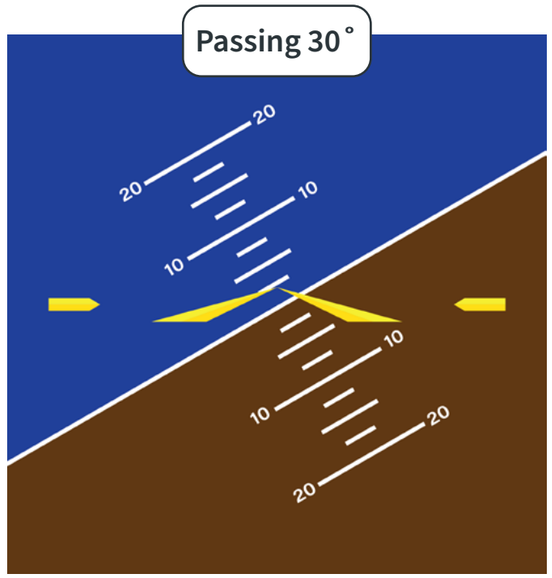


1. **POWER** FULL
2. **PITCH** ≈ +7.5˚ UP
3. **SPEED** 74 KT
4. **HEADING** MAINTAIN

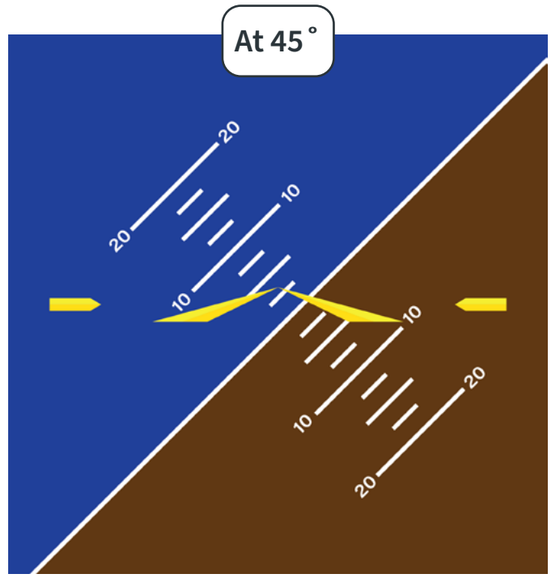
STEEP TURNS IFR



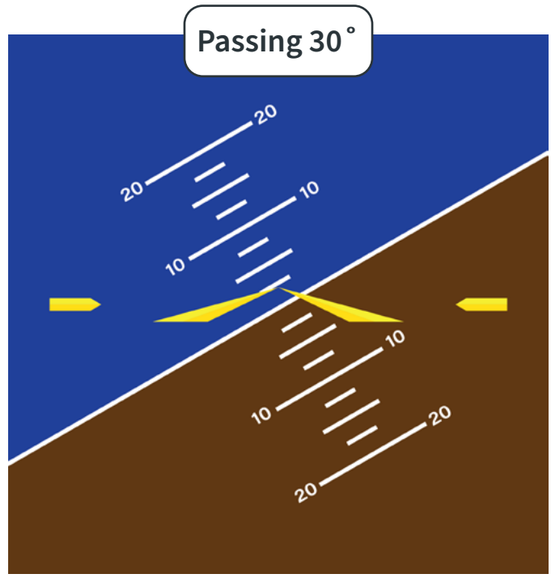
1. **POWER** 2200 RPM
2. **PITCH** ≈ 2.5˚UP
3. **ALTITUDE** MAINTAIN
4. **HEADING** NOTE



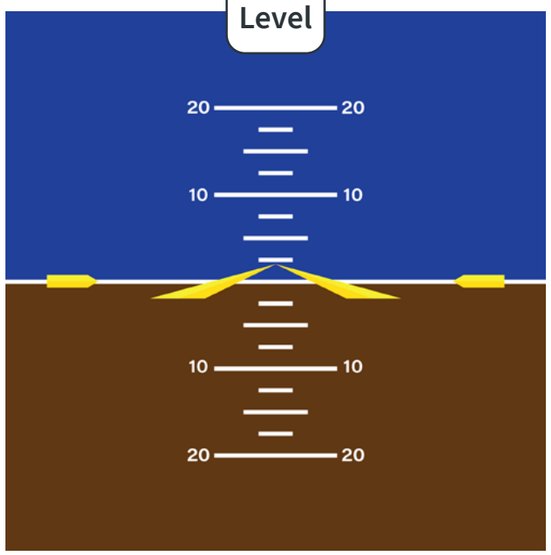
1. **POWER** + 200 RPM
2. **PITCH** INCREASE
3. **ALTITUDE** MAINTAIN
4. **HEADING** MONITOR



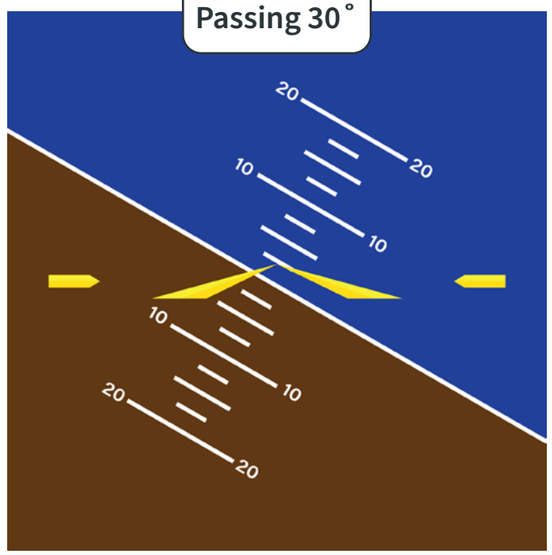
1. **POWER** AS REQ.
2. **PITCH** ≈ +1.5˚UP
3. **ALTITUDE** MAINTAIN
4. **HEADING** MONITOR



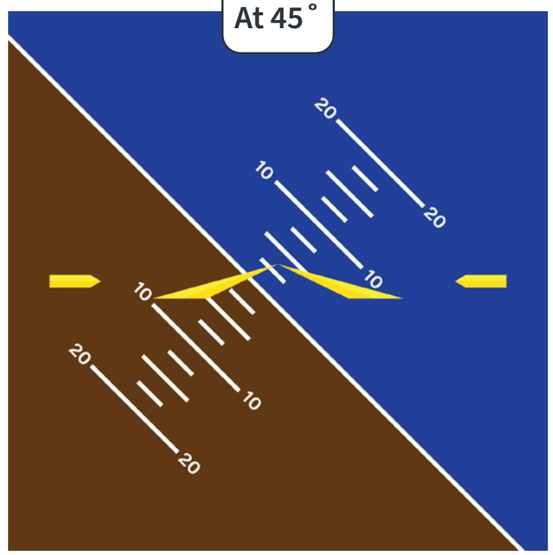
1. **POWER** - 200 RPM
2. **PITCH** DECREASE
3. **ALTITUDE** MAINTAIN
4. **HEADING** MONITOR



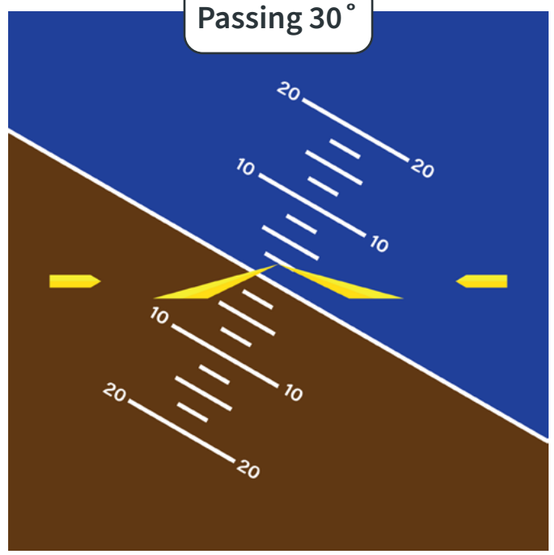
1. **POWER** 2200 RPM
2. **PITCH** ≈ 2.5˚UP
3. **ALTITUDE** MAINTAIN
4. **HEADING** NOTE



1. **POWER** + 200 RPM
2. **PITCH** INCREASE
3. **ALTITUDE** MAINTAIN
4. **HEADING** MONITOR

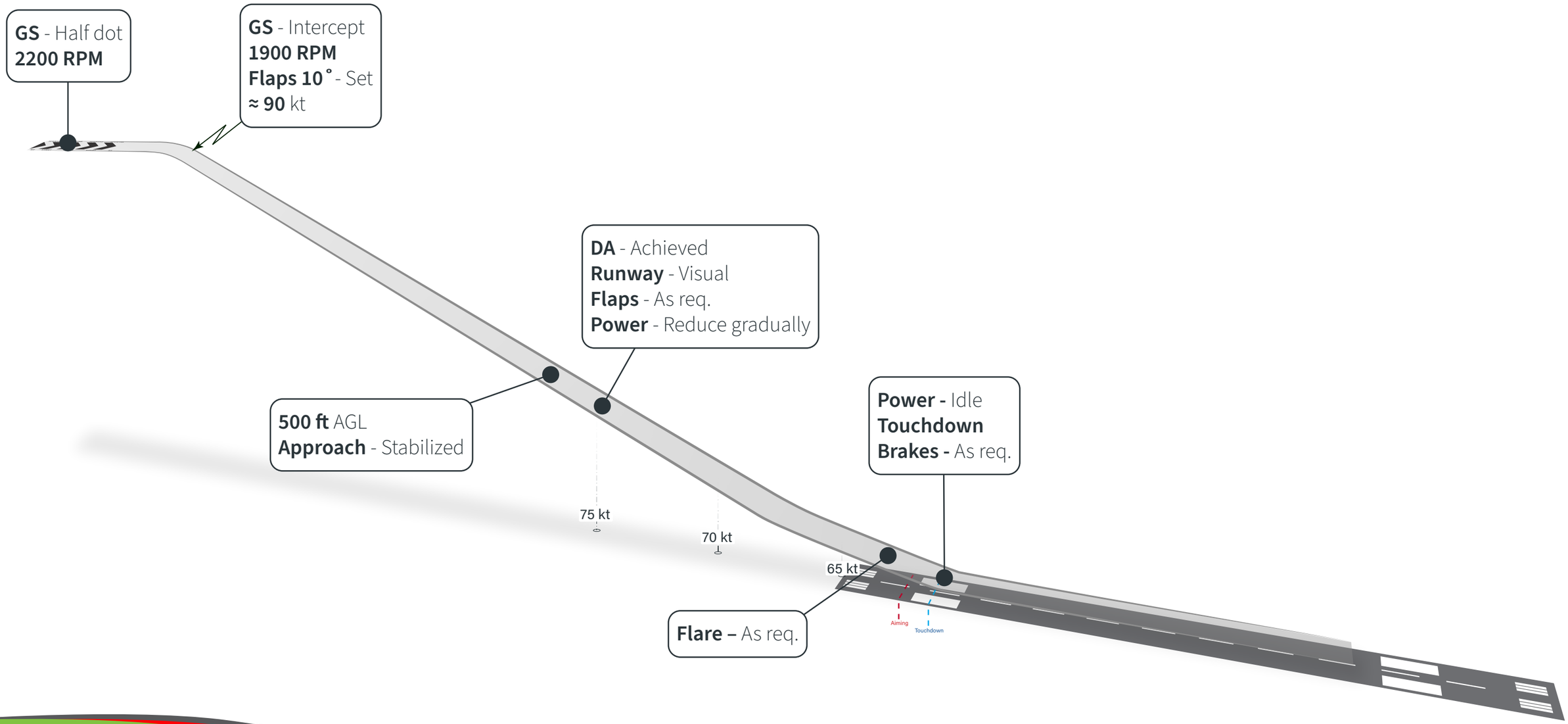


1. **POWER** AS REQ.
2. **PITCH** ≈ +1.5˚UP
3. **ALTITUDE** MAINTAIN
4. **HEADING** MONITOR

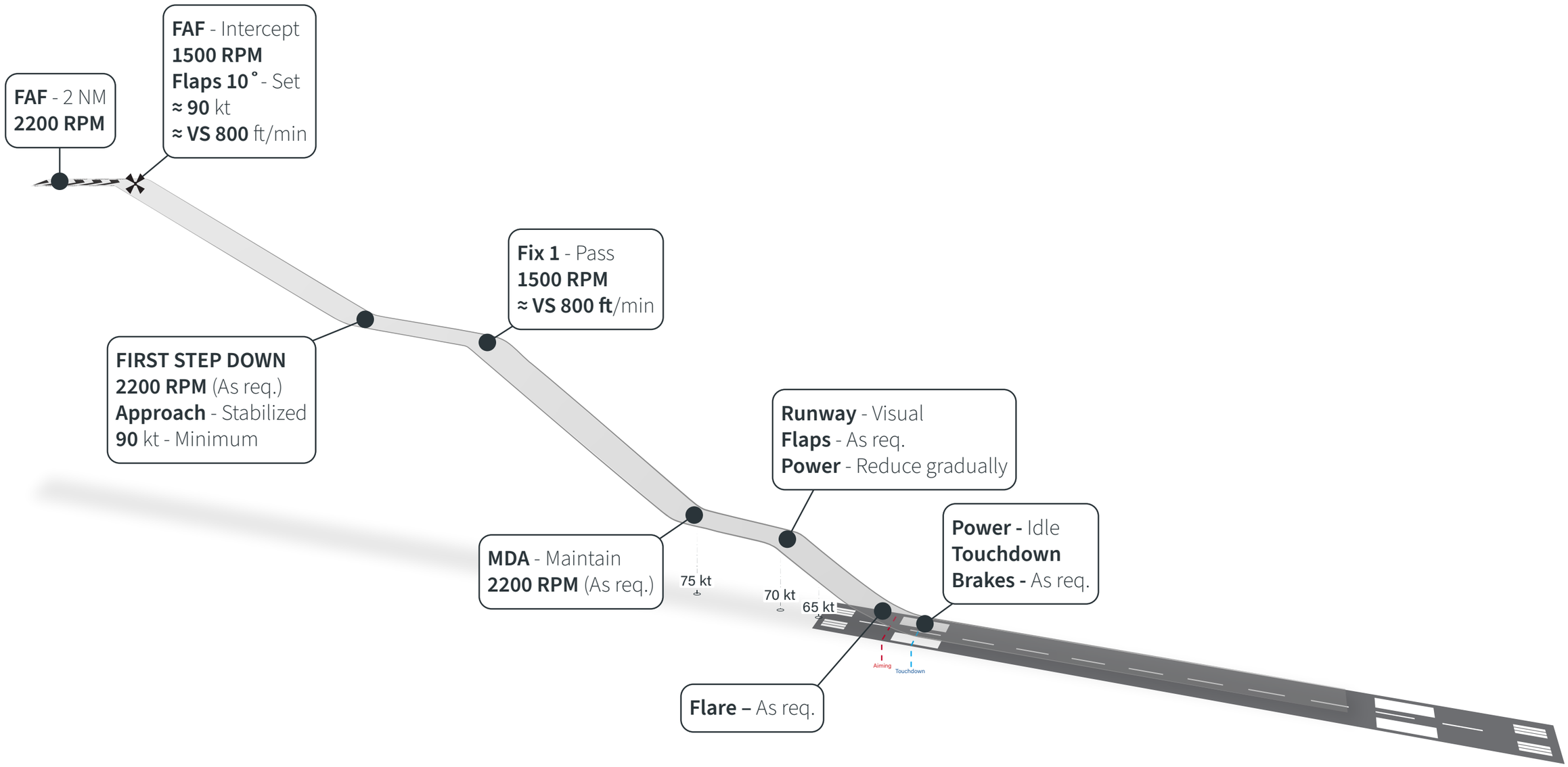


1. **POWER** - 200 RPM
2. **PITCH** DECREASE
3. **ALTITUDE** MAINTAIN
4. **HEADING** MONITOR

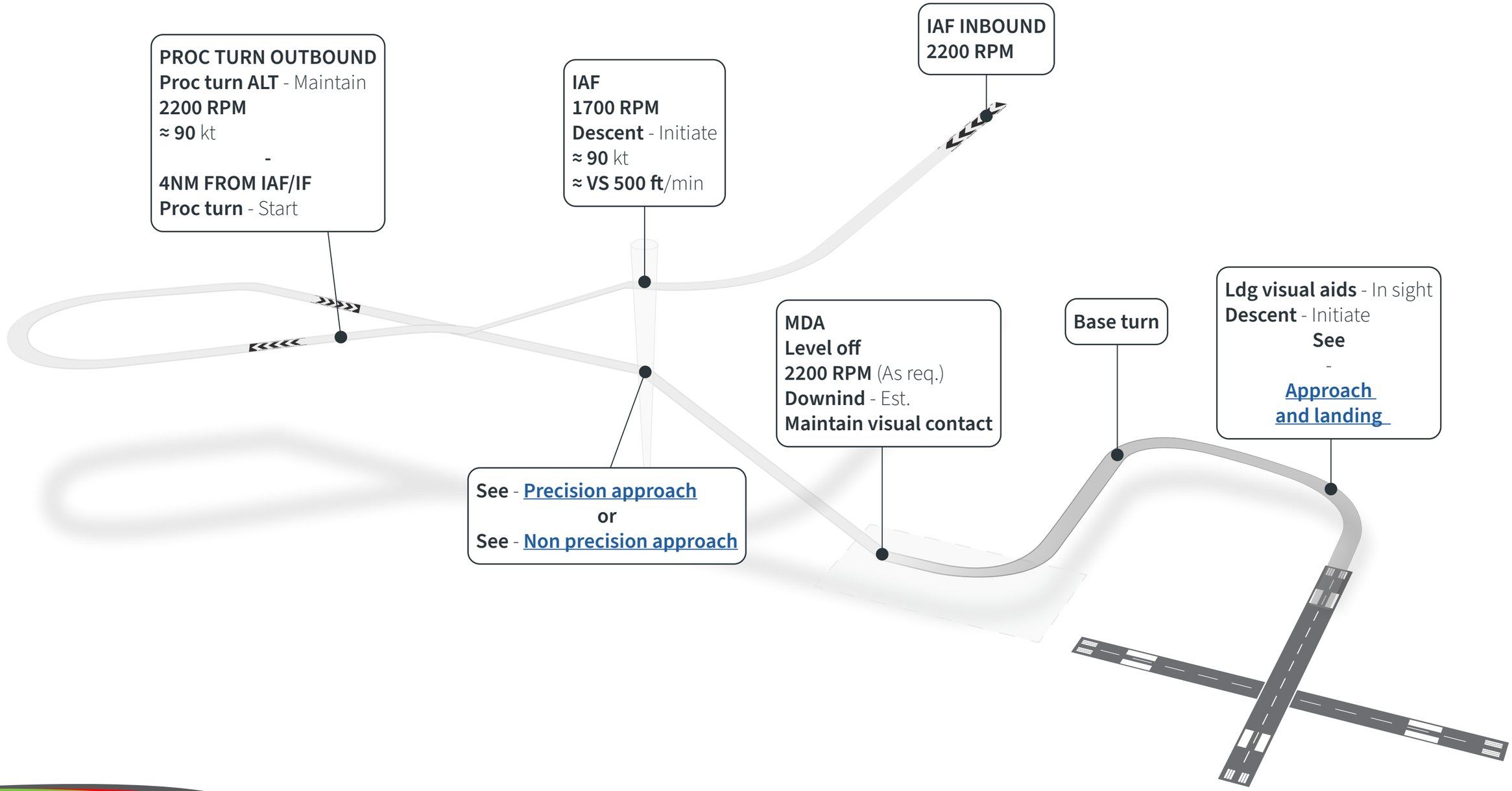
PRECISION APPROACH



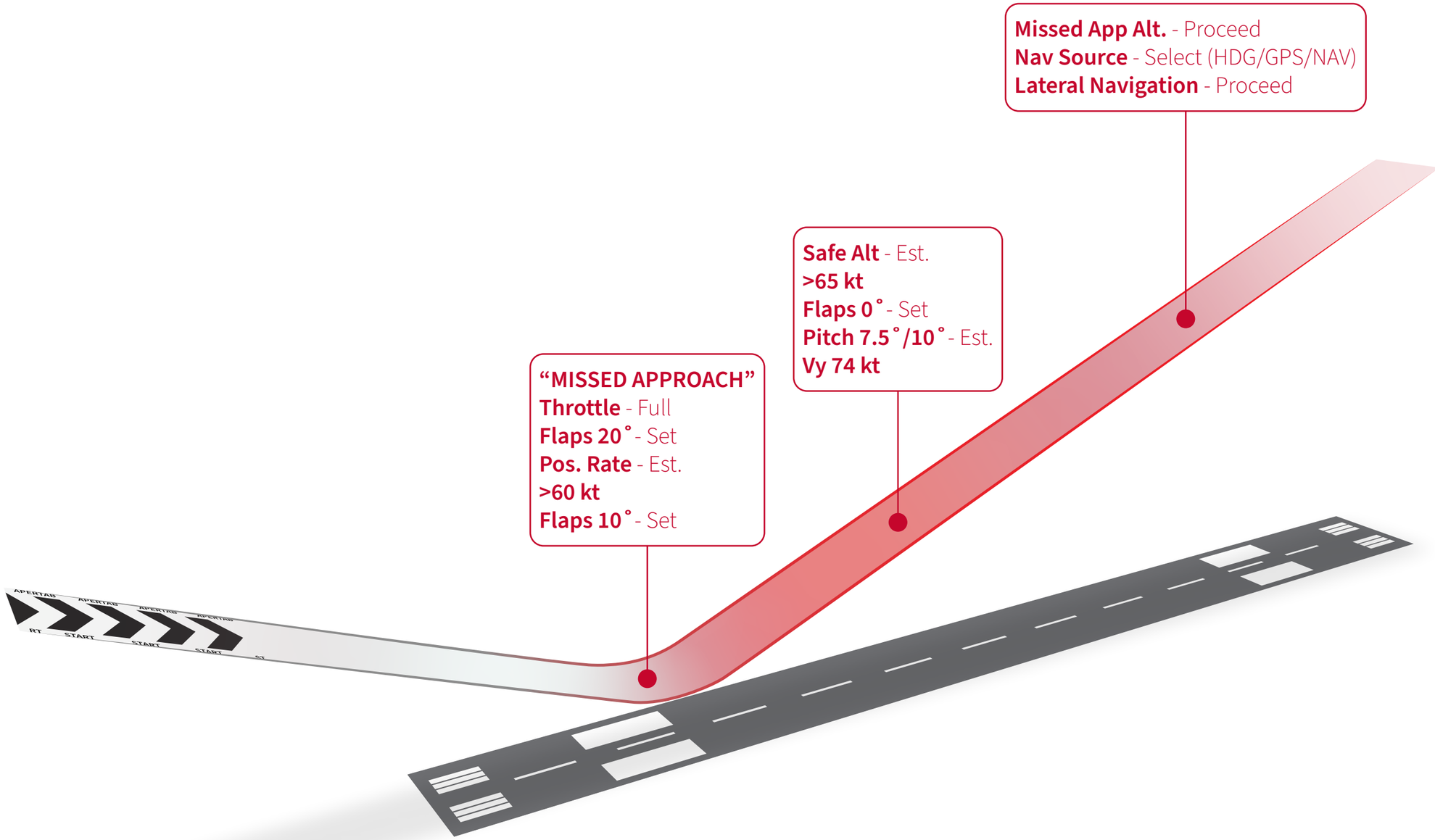
NON PRECISION APPROACH



PROC. TURN & CIRCLING APPROACH



MISSED APPROACH



CESSNA SKYHAWK C-172 SP

Part VII: Cockpit Flows

Rev [6.0]

ACCEPTANCE FLOW

1. ENVIRONMENTAL → OFF
2. FLAPS → UP
3. MIXTURE → FULL LEAN
4. THROTTLE → IDLE
5. FUEL SOV → PUSHED IN
6. FUEL SELECTOR → LEFT OR RIGHT
7. TRIM → TAKEOFF
8. ALT STATIC → PUSHED IN
9. BREAKERS → ALL IN
10. MAP LIGHT → OFF
11. MAGNETOS → OFF/KEYS OFF
12. DIMMING PANEL → ALL OFF/AVIONICS ON
13. ALL SWITCHES → OFF
14. MASTER/ALT → OFF
15. AVIONICS → OFF
16. STBY BATT → OFF

BEFORE ENGINE START FLOW

1. ENVIRONMENTAL → OFF
2. FLAPS → UP
3. MIXTURE → FULL LEAN
4. THROTTLE → 1/4 INCH
5. FUEL SOV → PUSHED IN
6. FUEL SELECTOR → BOTH
7. TRIM → TAKEOFF
8. ALT STATIC → PUSHED IN
9. BREAKERS → ALL IN
10. MAP LIGHT → OFF
11. MAGNETOS → OFF/KEYS OFF
12. DIMMING PANEL → ALL OFF/AVIONICS ON
13. ALL SWITCHES → OFF
14. MASTER/ALT → OFF
15. AVIONICS → OFF
16. STBY BATT → TEST/ARM
17. PFD/ELECTRICALS → CHECK

STARTING ENGINE FLOW

1. MIXTURE → FULL LEAN
2. FUEL PUMP → ON
3. MIXTURE → FULL RICH
4. FUEL FLOW → POSITIVE - 5 SEC
5. MIXTURE → LEAN
6. FUEL PUMP → OFF
7. IGNITION → START
8. MIXTURE → ADVANCE
9. ENGINE PARAMETERS → CHECK
10. AVIONICS → ON
11. PFD → SET
12. MFD → SET
13. MIXTURE → LEAN FOR TAXI

AFTER TAKEOFF FLOW

1. SAFE ALTITUDE → FLAPS UP
2. TURNING ALTITUDE → PASS
3. CLIMBING SPEED → ESTABLISH
4. LANDING LIGHTS → OFF
5. TAXI LIGHT → OFF

AFTER LANDING FLOW

1. FLAPS → UP
2. MIXTURE → LEAN AS REQ.
3. TRIM → NEUTRAL
4. STROBE LIGHTS → OFF
5. LANDING LIGHTS → OFF
6. TAXI LIGHT → ON

MANEUVERS A TO Z

TOC